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FINAL
REMEDIAL INVESTIGATION/
FEASIBILITY STUDY

VOLUME V - APPENDICES E AND F

DOUGLASSVILLE DISPOSAL SITE
BERKS COUNTY, PENNSYLVANIA

OCTOBER 1988
W.A. NO. 122-3L51

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FINAL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY REPORT
PHASE II

VOLUME V - APPENDICES E & F

DOUGLASSVILLE DISPOSAL SITE
BERKS COUNTY, PENNSYLVANIA

EPA WORK ASSIGNMENT NUMBER 122-3L51
UNDER
CONTRACT NUMBER 68-01-7250

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APPENDIX E

GROUNDWATER AND SURFACE-WATER MODELING METHODOLOGY AND CALCULATIONS

APPENDIX E

GROUNDWATER AND SURFACE-WATER MODELING METHODOLOGY AND CALCULATIONS

This Appendix includes a discussion of the following:

- Groundwater and surface-water modeling methodologies for the Douglassville Disposal site.
- Results of model calibration for flow and concentrations.
- Calculated groundwater and river concentrations for target compounds as a function of time under the no-action alternative.
- Source-loading calculations estimating the vadose zone loading into groundwater for the contaminants under consideration.

Migration of contaminants in a contaminated aquifer is a long time process, especially for those compounds which interact with aquifer materials. Therefore, the need to simulate and evaluate the discharge of contaminants into the Schuylkill River and the residual contamination in the aquifer is clearly indicated. This requirement was met through the use of a conceptual groundwater flow and solute transport model.

A conceptual model that includes both the groundwater and solute components was used to represent the groundwater flow and contaminant migration in the saturated groundwater zone beneath the Douglassville Disposal Site. Based on the amount of data available in both the overburden and bedrock aquifers, and the non-uniform distribution of hydraulic conductivity and contaminant concentration between these two distinct aquifers, a three-dimensional conceptual model was developed.

The purpose of this modeling effort was to analyze the future release of contaminants to the Schuylkill River under the no-action scenario and other soil cleanup alternatives. A steady-state flow model was selected to represent both present and future flow conditions. Contaminants simulated were selected based on the toxicity of the compounds, their associated concentration levels, and their mobility in the environment, as well as the relevant water-quality standards and criteria.

The long-term, steady-state, groundwater flow and time-dependent contaminant transport in the flow system were simulated using the Sandia Waste-Isolation Flow and Transport Model (SWIFT III) (Reeves, et al., 1986). (References for Appendix E are included at the end of Volume I of this report.)

SWIFT III is a numerical model that has been extensively employed, tested, and is considered a state-of-the-art simulation technique, applicable to hazardous waste investigation (see Ward et al., 1984, and Ward, 1985). SWIFT III models porous media.

SWIFT III is a transient/steady-state, three-dimensional, groundwater and solute transport code used to solve the coupled equations governing the head and contaminant distributions for the conceptual model of the site. SWIFT III uses the finite-difference approximation method to solve the governing equations. Therefore, a finite-difference solution grid was developed to represent the spatial structure of the conceptual model. The plan view of the grid is shown in Figure 5-1 (included in Section 5.0 of this report and in Appendix A). Both the overburden and the bedrock are represented by different conceptual layers in this three-dimensional site model.

The three-dimensional model grid was established based on the amount of data available horizontally and the size of the area of interest for the modeling analysis. Since this modeling analysis was used to simulate a steady-state local groundwater flow, the model grid size was determined such that the grid did not greatly exceed the area in which measured data are available and all the major surface-water bodies which may have influence on the groundwater flow are included.

The orientation of the grid was determined based on the local general groundwater flow direction as well as the direction of existing natural boundaries such as the no-flow or constant head boundary. Smaller grid block sizes were selected for the area where groundwater flow gradient is higher because the groundwater flow gradient needs to be simulated without being artificially smoothed by the use of broader grid sizes.

The baseline condition represents existing site conditions under the no-action alternative as a function of time. Effects of source remedial actions were also evaluated.

Input data of the model used to represent the contaminants and aquifers beneath the site include water elevation at the selected reference point, pressure of the constant pressure sources, hydraulic conductivities of the granular and fractured porous media, porosity and density of the media, geometry and location of the aquifers, the groundwater recharge rate from the vadose zone, dispersivities of contaminant in the aquifers, mass loading of contaminants from the vadose zone, and the distribution coefficient and the initial concentration of the contaminants of concern. Hydraulic conductivities used for the computer model are presented in Table E-22.

Water levels in both the overburden and bedrock monitoring wells at the site have been measured by the NUS Field Investigation Team in 1987. The results indicated that the seasonal variation in the water elevation varied from 3.5 feet to 8 feet, depending upon the location of the well. Most wells had a maximum fluctuation of 4 feet in a year. This local groundwater fluctuation is likely affected by the following factors:

- Seasonal variation in the local recharge into the groundwater as a result of precipitation.
- Fluctuation of the regional groundwater surrounding the site.

Neither of the above factors have been investigated. Although the local groundwater fluctuation has been identified, this fluctuation does not affect the local groundwater flow pattern. Therefore, a steady-state groundwater flow model is appropriate to represent the present and future flow conditions, assuming that no other hydraulic activities such as pumping, injection, construction of underground barrier, etc., are to occur in the future.

The groundwater model was constructed by including one overburden porous media above the bedrock matrix. Since the thickness of the bedrock beneath the site is undetermined, the bedrock matrix was conceptually divided into two different zones. The upper zone bedrock is in direct hydraulic connection with the overburden media. The lower zone bedrock is similarly connected with the upper bedrock zone, and allows the contaminants to disperse and transport to the deeper area of the bedrock. A bedrock surface contour determined from well borings was directly incorporated into the model. This contour also determines the bottom of the overburden layer. According to the available maximum depth of the bedrock monitoring wells and the measured contaminant concentrations in the cluster wells, the thickness of the upper zone bedrock is assumed to be 28 feet and that of the lower zone bedrock is 50 feet.

The boundary of the model was treated as an interface between the local aquifer and the regional aquifer. Groundwater flow between the local and regional aquifers was assumed to be at steady-state conditions as well as the local groundwater flow at the site.

Since the model simulates a steady-state groundwater flow, the parameter of storage capacity for the aquifer materials was not needed. Molecular diffusion coefficient was considered negligible compared with hydrodynamic dispersion coefficient because of the significant flow velocity in the porous media. The process of adsorption-desorption of contaminant on the aquifer materials are considered in the model as linear for the partitioning of contaminants between water and aquifer material. Processes of biodegradation were not considered because the kinetics and reaction rate for each contaminant were unknown. Porosities of 0.4 and 0.3 were used, respectively, for the overburden and bedrock materials, based on the properties of the aquifer materials determined from the well logs. Bulk density of 105 pounds per cubic foot was used for both the overburden and bedrock materials.

Uniform dispersivities were individually applied to the overburden and bedrock materials. The calibrated longitudinal dispersivities of the overburden and bedrock were 160 feet and 230 feet respectively. The associated transverse dispersivities for these aquifer material are, respectively, 16 feet and 23 feet. They are within the normal range for the aquifer materials of concern (Freeze et al., 1979, and Anderson, 1984).

The major assumptions for this modeling effort include the following:

- Regional and local groundwater flows are under steady-state conditions.
- The steady-state local groundwater flow pattern does not change within the simulated time period.
- Vertical hydraulic conductivities in the overburden and bedrock are 1/100 of the related horizontal hydraulic conductivities.
- Groundwater density is constant in the aquifers.
- Contaminated groundwater in the aquifers is considered as a single-phase fluid, which is governed by Darcy's Law.
- Contaminants recharged from the vadose zone are completely miscible with the groundwater.
- Horizontal hydraulic conductivity is isotropic.
- Longitudinal and transverse dispersivities of contaminants are homogeneous in both the bedrock and the overburden.
- Adsorption-desorption reaction in the groundwater is instantaneous in the aquifer.
- The equilibrium isotherm is linear.
- Contaminant discharge from the aquifer is completely mixed with the river water.
- Seven-day, 10-year low flow in the Schuylkill River is constant within the simulated period.

The conceptual model developed for the Douglassville Disposal Site was calibrated by utilizing the measured data of water elevations and contaminant concentrations in the overburden and bedrock and adjusting the hydraulic conductivities in those model blocks in which no hydraulic conductivity data were available as well as the dispersivities of contaminant in the overburden and bedrock. Vertical hydraulic conductivities in both the overburden and bedrock aquifers were assumed to be 1/100 of the measured or calibrated horizontal hydraulic conductivities. Horizontal hydraulic conductivities within each individual model block, however, were assumed to be isotropic.

The vadose zone above the groundwater table not only releases contaminants into groundwater but also recharges the water table with downward movement of unsaturated flow. This recharge rate was determined by considering the annual precipitation at the site and the possible water losses through surface runoff, evapotranspiration/evaporation from the site, and the water-holding capacity of the soil. Net recharge into the groundwater was therefore calculated based on the concept of water balance (Thornwaite and Mather, 1957, and Schroeder et al., 1984). The determined recharge rate was assumed to be uniform at the site except for areas that have been paved. For paved areas, the recharge rate was reduced, based on the percentage of the pavement and the condition of the pavement. The local net recharge rate was determined to be 9.6 inches per year. For the paved area the recharge rate was approximately 1 inch per year.

Kinetics of adsorption-desorption equilibrium was assumed to be instantaneous for all of the contaminants in the overburden and bedrock aquifers. The distribution coefficient for each compound of concern was obtained through the published, normalized organic carbon partition coefficient.

Conceptually, the groundwater and contaminant transport model developed in this study provides an approximation to the current groundwater system. Based on the assumptions listed above, all the major processes and general characteristics of the aquifers are included in the model. The major processes are mathematically described by the governing equations contained in the computer code, which includes the following relatively sensitive model parameters; hydraulic conductivity, hydrodynamic dispersivity, and partition coefficients. Although no detailed sensitivity analyses has been conducted for this modeling, the level of sensitivity for the model parameters was identified in the documentation related to this computer code.

The extent of agreement between the measured and simulated data during model calibration is dependent upon the complexity of the real system and the type of the simplification imposed on the model. From a practical standpoint, exact agreement between the field-measured data and the computer-simulated data is not possible nor is it a requirement for the stated objectives. Typically, less agreement between the measured and simulated data is frequently encountered for contaminant simulation relative to the flow simulation. Furthermore, the extent of agreement depends on the type of model variables and the unit of the variables used in the model. Since the flow component of the model was employed under steady-state condition, the numerical errors induced by the flow equation of the computer code are comparatively lower than those caused by the contaminant transport equations of the model. Verification of the model algorithms was performed by comparing the simulated results with field-measured data under various well pumping conditions in the leaky aquifer. The maximum numerical errors in the calculation of drawdown at different times were found to be less than 1 meter (Ward et. al., 1984). This correlates well with field data for the flow component.

The flow system in the present aquifer was accurately calibrated before the calibration for contaminant transport was initiated. Exact agreement for the contaminant concentrations at every sampled well location was not reached because of the use of uniform dispersivities and other simplifying assumptions.

The assumption of a uniform dispersivity across each aquifer medium within the study area is a requirement of the computer code and, therefore, poses a limitation on modeling a large and complex aquifer, even though it is known that dispersivity varies throughout the study area.

Considering the assumptions used in this modeling and the complexity of the real system, a tradeoff between accuracy of modeling contaminant concentrations at specific locations, and application of the model to substantial space and time requirements must be made. The judgment was made to enhance accuracy in the more contaminated areas at the expense of the less contaminated areas. This was because the more contaminated areas will likely require more intense groundwater remediation; therefore greater accuracy will be useful to guide decisions regarding remedial alternative selection in these areas.

From the practical viewpoint, the flow and contaminant model calibration in this study is considered to be valid because the model provides the information to meet the objective of supporting the evaluation of long-term contaminant migration patterns. Because of certain simplifying assumptions, such as the use of uniform dispersivity for the entire aquifer, exact agreement between the measured and simulated results for every sampled location is not possible.

The resultant calibrated model is, therefore, a three-dimensional, heterogeneous, vertically anisotropic, steady-state flow and transient contaminant transport model. Comparisons of the simulated flow and contaminant concentrations resulting from the calibrated model with the measured data are shown in Tables E-1 through E-4.

This calibrated model was then used to simulate the contaminant distribution in the aquifers in the future under the given contaminant loadings from the site.

Hydraulic conductivity for the aquifer materials obtained from Phase I and Phase II RI studies was selectively used as input to the model. Questionable or erroneous data were not adopted. For those areas for which measured data were not available, both the methods of geologic data interpretation and model calibration were used to determine the value of the unknown hydraulic conductivity of the model.

Constant pressure sources, such as the Schuylkill River and onsite and offsite ponds were also included in the model. A water elevation of 6 feet was used for the Schuylkill River. Water elevations of 2 feet and 4 feet, respectively, were used for the onsite and offsite ponds.

In addition to the values of the model parameters that have been discussed or presented above, the only parameter that directly differentiates the characteristic of interaction of a compound with aquifer materials from the others during model simulation is the distribution coefficient. Values of the distribution coefficient for those simulated compounds are shown in Table E-5.

Three compounds, including benzene, vinyl chloride, and lead, have been specifically calibrated prior to model application in order to determine the initial concentrations of these compounds in those areas of the aquifers where no well sampling results are available. The purpose of this calibration was to avoid using zero concentration or interpolated concentrations for those areas which do not have well sampling results. These compounds were selected for calibration because of their higher toxicity and higher concentration levels at the site.

For the other compounds, such as trichloroethene, 1,2-dichloroethane, PCB, and bis(2-ethylhexyl)phthalate, only the measured concentrations were entered into the model. For those areas of the aquifers which do not have measured concentrations, the initial concentration was assumed nondetected. The use of this assumption is considered acceptable for the purpose of risk assessment of the compounds which have a high affinity for the aquifer materials and whose concentration level in the aquifer is less. For those compounds which do not satisfy the above conditions, the use of zero initial concentration in the areas without measured data may pose less reliability for the simulated results at the time close to the initial time of the model simulation.

Calculated groundwater concentration of benzene, vinyl chloride, trichloroethene, 1,2-dichloroethane, PCBs, bis(2-ethylhexyl)phthalate, and lead in monitoring wells and other locations underneath the site area are given in Tables E-6 through E-13, as a function of time from the present.

The flow of the contaminants into the Schuylkill River was determined by calculating the steady-state groundwater recharge into the river along with the simulated contaminant concentration in the aquifer along the river.

The Schuylkill River was simulated as a water body that has a constant surface-water elevation. This water body is in direct contact with the overburden layer. The flux of groundwater between the aquifer and the water body was determined through the use of the stream bed and aquifer hydraulic conductivities and the head difference between the river and the aquifer. The exterior boundary of the model was treated as an interface between the local aquifer and the regional aquifer. Groundwater flow between the local and regional aquifers was assumed to be at steady-state as well as the local groundwater flow at the site.

The steady-state groundwater recharge into the river was expressed with the following formula:

$$Q_G = \frac{KL}{2W}\left(h_0{}^2 - h_1^2\right) \qquad (1)$$

Where:
- Q_G = Groundwater flow into the river (ft^3/day)
- K = Hydraulic conductivity of the media along the river (ft/day)
- L = Length of the aquifer block along the river
- W = Distance of the aquifer block measured from the center of the block to the edge of the block along the river.
- h_0 = Head of the aquifer block along the river
- h_1 = Water elevations of the river

Steady-state contaminant concentration in a reach of the river was determined by the following formula:

$$C = C_G\left(\frac{Q_G}{Q_G + Q_I}\right) + C_I\left(\frac{Q_I}{Q_G + Q_I}\right) \qquad (2)$$

Where:
- C = Uniform contaminant concentration in a reach of the river
- C_G = Simulated contaminant concentration in the aquifer along the river
- C_I = Contaminant concentration in the upstream end of the concerned reach
- Q_I = River flow from the upstream end of the concerned reach
- Q_G = Groundwater flow into the river (ft^3/day)

Because the calculated groundwater recharge into the river is much less than the river flow (Q_R), the following approximation is assumed, i.e.,

$$Q_I = Q_R + Q_G \quad Q_R$$

Equation(2) is, therefore, written as:

$$C = C_G\left(\frac{Q_G}{Q_G + Q_R}\right) + C_I\left(\frac{Q_R}{Q_G + Q_R}\right) \qquad (3)$$

The reported 7-day, 10-year low flows at Reading and Pottstown, Pennsylvania, are 160 cfs and 259 cfs, respectively. The average value of the above 7-day, 10-year low flows was used as the river flow, to calculate the contaminant concentration in a reach of the Schuylkill River in the vicinity of the downstream end of the site boundary. The calculated contaminant concentrations in the river for future periods of time are listed in Tables E-14 through E-21.

In summary, a calibrated, three-dimensional steady-state flow and transient contaminant transport groundwater model was used to simulate the contaminant distribution in the aquifers. Subsequently, a steady-state river model was used to calculate the contaminant concentrations in the Schuylkill River under 7-day, 10-year, low flow conditions.

Sensitivity analyses were not performed because most of the assumptions were conservative, especially the source loadings. Sensitivity analyses would not provide more useful information. If less-conservative source loadings are used, the model results would show less effect on the Schuylkill River.

TABLE E-1

RESULTS OF THE SWIFT III MODEL FLOW CALIBRATION
DOUGLASSVILLE DISPOSAL SITE

Well	Type*	Measured Water Elevation (ft)	SWIFT III Model Simulated Water Elevation (ft)
MW1-1	O	133	134
MW1-2	B	132	134
MW1-3	B	132	132
MW2-1	B	134	138
MW3-2	B	135	138
MW4-1	B	133	135
MW4-2	O	133	135
MW5-1	B	137	135
MW5-2	O	136	134
MW6-1	B	136	139
MW6-2	O	136	139
MW7-1	B	149	148
MW7-2	O	149	148
MW8-1	O	133	134
MW8-2	B	133	134
MW9-1	B	145	145
MW9-2	O/B	144	145
MW10-1	O/B	150	147
MW10-2	B	150	147
MW11-1	B	134	137
MW12-1	B	136	138
MW13-1	B	136	136
MW13-2	O/B	136	136
MW15-1	O/B	146	146
MW15-2	B	146	146

TABLE E-1
RESULTS OF THE SWIFT III MODEL FLOW CALIBRATION
DOUGLASSVILLE DISPOSAL SITE
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Well	Type*	Measured Water Elevation (ft)	Simulated Water Elevation (ft)
MW15-3	B	146	146
MW16-1	O/B	151	151
MW16-2	B	151	150
MW17-1	O/B	137	141
MW17-2	B	138	142
MW18-1	O/B	133	134
MW18-2	B	133	134
MW19-1	O/B	132	133
MW19-2	B	132	133
MW20-1	O/B	133	134
MW20-2	B	134	134

* O - Overburden well
  B - Bedrock well

TABLE E-2

RESULTS OF THE SWIFT III MODEL
CONCENTRATION CALIBRATION FOR BENZENE
DOUGLASSVILLE DISPOSAL SITE

Well	Type*	Measured Concentration (ppb)	SWIFT III Model Simulated Concentration (ppb)
MW8-1	O	4.7	4.4
MW9-2	O	2,000	2,011
MW15-1	O	390	384
MW17-1	O	6	23
MW18-1	O	1.7	4.3
MW19-1	O	3.9	9.5
MW1-2	B	2.3	13.9
MW3-2	B	35	25
MW7-1	B	0.33	9.8
MW8-2	B	17	4.3
MW9-1	B	100	51
MW11-1	B	2.5	13.5
MW12-1	B	0.32	23.5
MW15-2	B	340	83
MW15-3	B	30.5	40
MW17-2	B	14	23
MW18-2	B	1.6	4.7
MW19-2	B	5.3	10.1

* O - Overburden well
B - Bedrock well

TABLE E-3

RESULTS OF THE SWIFT III MODEL CONCENTRATION CALIBRATION FOR VINYL CHLORIDE DOUGLASSVILLE DISPOSAL SITE

Well	Type *	Measured Concentration (ppb)	SWIFT III Model Simulated Concentration (ppb)
MW8-1	0	14	6
MW9-2	0	6.7	19.1
MW15-1	0	1,200	1,230
MW17-1	0	13	36
MW19-1	0	22	9
MW1-2	B	10	13
MW1-3	B	9.1	11.5
MW2-1	B	3.9	2.6
MW3-2	B	110	19
MW4-1	B	0.72	0.52
MW7-1	B	3.5	18
MW8-2	B	140	5
MW9-1	B	4.9	20
MW11-1	B	5.3	20
MW15-2	B	490	220
MW15-3	B	90	85
MW17-2	B	32	37
MW18-2	B	13	7
MW19-2	B	81	10

*0 - Overburden well
B - Bedrock well

TABLE E-4

RESULTS OF THE SWIFT III MODEL CONCENTRATION CALIBRATION FOR LEAD (DISSOLVED) DOUGLASSVILLE DISPOSAL SITE

Well	Coordinate	Measured Concentration (ppb)	SWIFT III Model Simulated Concentration (ppb)
MW 1-1 (O)*	21/11	70	73
MW 8-1 (O)	19/17	3.6	3.4
MW 9-2 (O)	3 & 4/7 & 8	6	5.9
MW 15-1 (O)	4/10	63	64
MW 18-1 (O)	22/5	76	82
MW 19-1 (O)	22/8	9.2	15
MW 1-3 (B)	21 & 22/11	69	55
MW 8-2 (B)	19/17	51	3.3
MW 9-1 (B)	3 & 4/7 & 8	6	3.4
MW 14-1 (B)	2/6 & 7	5	0.8
MW 18-2 (B)	22/5	227	82

*O - Overburden well
B - Bedrock well

TABLE E-5

DISTRIBUTION COEFFICIENTS FOR THE SIMULATED COMPOUNDS
DOUGLASSVILLE DISPOSAL SITE

Compound	Distribution Coefficients (ft^3/lb)	
	Overburden	Bedrock
Benzene	6.57×10^{-3}	0
Vinyl Chloride	8.33×10^{-4}	0
Lead	7.20×10^{-2}	0
Trichloroethene	1.27×10^{-3}	0
1,2-Dichloroethane	1.41×10^{-3}	0
PCB	6.76×10^{2}	0.7
Bis(2-ethylhexyl)phthalate	2.02×10^{5}	200

TABLE E-6

CALCULATED GROUNDWATER CONCENTRATIONS OF BENZENE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yr.)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
Present	13.4	4.7	18.8	2000	390	0.4	1.7
5	12.1	3.6	12.7	9.6	29.6	0.37	4.9
10	10.3	3.2	9.0	3.0	6.5	0.36	5.3
15	8.5	2.7	6.4	2.3	3.5	0.32	5.5
20	6.9	2.3	4.6	2.0	2.8	0.28	5.5
25	5.6	1.9	3.3	1.9	2.5	0.24	5.3
30	4.6	1.5	2.5	1.9	2.3	0.20	5.1
35	3.7	1.2	1.9	1.8	2.3	0.16	4.7
40	3.1	0.98	1.5	1.8	2.2	0.13	4.4
50	2.2	0.67	1.0	1.8	2.2	0.08	3.6
60	1.7	0.51	0.83	1.8	2.2	0.06	3.1
70	1.4	0.41	0.71	1.8	2.2	0.04	2.6
80	1.3	0.36	0.65	1.8	2.2	0.035	2.3
90	1.1	0.32	0.61	1.8	2.2	0.029	2.0
100	1.1	0.3	0.59	1.8	2.2	0.026	1.9
120	1.0	0.28	0.56	1.8	2.2	0.022	1.7
140	0.96	0.27	0.55	1.8	2.2	0.021	1.6

TABLE E-6
CALCULATED GROUNDWATER CONCENTRATIONS OF BENZENE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME
DOUGLASSVILLE DISPOSAL SITE
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Time (yr.)	Concentration in Monitoring Wells* (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
160	0.94	0.26	0.55	1.8	2.2	0.02	1.6
200	0.93	0.26	0.55	1.8	2.2	0.02	1.5
250	0.93	0.26	0.55	1.8	2.2	0.02	1.5
300	0.93	0.26	0.55	1.8	2.2	0.02	1.5
340	0.93	0.26	0.55	1.8	2.2	0.02	1.5
400	0.93	0.26	0.55	1.8	2.2	0.02	1.5
440	0.93	0.26	0.55	1.8	2.2	0.02	1.5
500	0.93	0.26	0.55	1.8	2.2	0.02	1.5

* Monitoring well locations and the location of the grid element (16, 11) are provided in Figure 5-1.

Locations of monitoring wells and the grid element (16, 11) included in this table and Tables E-7 through E-13 are provided in Figure 5-1.

TABLE E-7

CALCULATED GROUNDWATER CONCENTRATIONS OF VINYL CHLORIDE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	MW 1-2	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-1	MW 18-2
Present	10	14	18	6.7	1,200	0.72	13
5	12.1	4.2	15.6	5.5	50.8	0.52	6.7
10	11.3	3.7	11.5	1.8	6.3	0.49	6.7
15	9.4	3.1	8.0	0.74	1.9	0.44	6.6
20	7.6	2.5	5.3	0.37	0.86	0.36	6.4
25	5.9	2.0	3.5	0.22	0.45	0.29	6.0
30	4.5	1.5	2.4	0.14	0.26	0.23	5.4
35	3.4	1.1	1.6	0.11	0.17	0.17	4.8
40	2.5	0.8	1.1	0.09	0.12	0.13	4.1
45	1.9	0.6	0.8	0.08	0.09	0.10	3.5
50	1.4	0.4	0.5	0.07	0.07	0.07	2.9
60	0.9	0.3	0.3	0.06	0.06	0.04	2.0
70	0.6	0.2	0.2	0.06	0.05	0.03	1.4
80	0.4	0.1	0.1	0.06	0.04	0.02	0.93
90	0.2	0.06	0.065	0.06	0.04	0.01	0.63
100	0.15	0.04	0.042	0.06	0.04	0.006	0.43
120	0.07	0.02	0.02	0.06	0.04	0.003	0.2
140	0.04	0.01	0.01	0.06	0.04	0.001	0.1
160	0.02	0.006	0.009	0.06	0.04	0.001	0.06
180	0.02	0.004	0.008	0.06	0.04	0.001	0.03
200	0.01	0.004	0.007	0.06	0.04	0.001	0.02
250	0.01	0.003	0.007	0.06	0.04	0.0004	0.01
300	0.01	0.002	0.007	0.06	0.04	0.0003	0.01
35'	0.01	0.002	0.007	0.06	0.04	0.0003	004
400	0.01	0.002	0.006	0.06	0.04	0.0003	0.003

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E E-8

CALCULATED GROUNDWATER CONCENTRATIONS OF TRICHLOROETHENE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME
DOUGLASSVILLE DISPOSAL SITE

Time (years)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 18-1	MW 15-1	MW 9-1	MW 4-2	MW 8-1	(16,11)
Present	1.4	--	--	--	--	20	--
5	1.7	0.5	42.4	3	0.1	2.5	1.5
10	2.7	1.2	49.3	3.9	0.08	1.3	2.2
15	3.7	1.9	50.6	4.1	0.08	1.4	3.2
20	4.6	2.6	51.0	4.3	0.1	1.6	4.0
25	5.3	3.2	51.2	4.3	0.1	1.9	4.6
30	5.9	3.7	51.2	4.3	0.1	2.1	5.0
35	6.4	4.2	51.3	4.4	0.2	2.2	5.3
40	6.8	4.7	51.3	4.4	0.2	2.4	5.6
50	7.4	5.3	51.3	4.4	0.2	2.7	5.8
60	7.7	5.8	51.3	4.4	0.2	2.7	6.0
80	8.0	6.5	51.3	4.4	0.2	2.8	6.1
100	8.2	6.8	51.3	4.4	0.3	2.9	6.1
150	8.3	7.1	51.3	4.4	0.3	2.9	6.2
200	8.3	7.1	51.3	4.4	0.3	2.9	6.2
300	8.3	7.2	51.3	4.4	0.3	2.9	6.2
500	8.3	7.2	51.3	4.4	0.3	2.9	6.2
800	8.3	7.2	51.3	4.4	0.3	2.9	6.2

TABLE E-9

CALCULATED GROUNDWATER CONCENTRATIONS OF 1,2-DICHLOROETHANE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	(16,11)	MW 4-1	MW 18-2	MW 9-2	MW 15-1	MW 1-1	MW 8-1
Present	--	0.10	0.65	4.9	12	4.8	34
5	0.5	0.03	0.2	1.2	1.3	5.0	3.4
10	0.6	0.04	0.3	1.2	1.0	2.8	0.9
15	0.6	0.04	0.4	1.2	1.0	2.3	0.6
20	0.7	0.04	0.5	1.2	1.0	2.1	0.6
30	0.7	0.04	0.6	1.2	1.0	2.0	0.6
40	0.7	0.04	0.7	1.2	1.0	1.9	0.6
60	0.7	0.04	0.7	1.2	1.0	1.9	0.6
80	0.7	0.04	0.8	1.2	1.0	1.9	0.6
100	0.7	0.04	0.8	1.2	1.0	1.9	0.6
150	0.7	0.04	0.8	1.2	1.0	2.0	0.7
200	0.7	0.04	0.8	1.2	1.0	2.0	0.7
300	0.7	0.04	0.8	1.2	1.0	2.0	0.7
400	0.7	0.04	0.8	1.2	1.0	2.0	0.7
500	0.7	0.04	0.8	1.2	1.0	2.0	0.7

TABLE E-10

CALCULATED GROUNDWATER CONCENTRATIONS OF PCBS IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
Present	--	--	--	430	10	--	3.1
5	~0	~0	~0	399	10	~0	3.1
10	~0	~0	~0	370	10	~0	3.1
15	~0	~0	~0	343	10	~0	3.1
20	~0	~0	~0	318	10	~0	3.1
25	~0	~0	~0	295	10	~0	3.1
30	~0	~0	~0	274	10	~0	3.1
40	~0	~0	~0	236	10	~0	3.1
50	~0	~0	~0	203	10	~0	3.1
100	~0	~0	0.00003	99.7	9.9	~0	3.1
200	~0	~0	0.00007	28	9.8	~0	3.1
300	~0	~0	0.00010	8.1	9.7	~0	3.1
400	0.00002	~0	0.00020	2.5	9.6	~0	3.1
500	0.00003	~0	0.00020	0.9	9.5	~0	3.1
600	0.00004	~0	0.00030	0.4	9.4	~0	3.1
700	0.00006	~0	0.00030	0.2	9.4	~0	3.1
800	0.00008	0.00001	0.00040	0.2	9.3	~0	3.1
900	0.00010	0.00001	0.00050	0.1	9.2	~0	3.1
1,000	0.00010	0.0002	0.00060	0.1	9.1	~0	3.1

TABLE E-11

CALCULATED GROUNDWATER CONCENTRATIONS OF BIS(2-ETHYLHEXYL)PHTHALATE IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
resent	--	--	--	4	--	--	--
5	~0	~0	~0	4	~0	~0	~0
25	~0	~0	~0	4	~0	~0	~0
50	~0	~0	~0	4	~0	~0	~0
100	~0	~0	~0	4	0.00001	~0	~0
250	~0	~0	~0	3.9	0.00002	~0	~0
300	~0	~0	~0	3.9	0.00003	~0	~0
400	~0	~0	0.00001	3.9	0.00003	~0	0.00001
500	~0	~0	0.00001	3.9	0.00004	~0	0.00001
600	~0	~0	0.00001	3.9	0.00005	~0	0.00001
700	~0	~0	0.00001	3.9	0.00006	~0	0.00001
800	~0	~0	0.00001	3.8	0.00007	~0	0.00001
900	~0	~0	0.00001	3.8	0.00008	~0	0.00001
1,000	~0	~0	0.00002	3.8	0.00008	~0	0.00002

TA E-12

CALCULATED GROUNDWATER CONCENTRATIONS OF LEAD IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME AND ASSUMING 100 YEARS OF LEACHING INTO GROUNDWATER
DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
resent	70	3.6	6	6	63	0.08	76
10	5,281	251	1,161	2,965	1,511	2.6	989
20	10,137	658	2,325	3,028	1,842	9.4	2,316
30	13,791	1,114	3,258	3,043	1,932	21.1	3,744
40	16,419	1,548	3,963	3,050	1,966	36.7	5,111
50	18,308	1,928	4,487	3,054	1,983	55	6,347
60	19,682	2,245	4,877	3,058	1,995	74.2	7,431
70	20,697	2,504	5,169	3,060	2,003	93.3	8,364
80	21,457	2,710	5,388	3,062	2,010	111.1	9,160
90	22,033	2,873	5,553	3,064	2,015	127.3	9,834
100	22,474	3,002	5,678	3,065	2,019	141.4	10,400
125	12,629	2,344	3,390	56.5	275.4	145.6	8,482
150	6,761	1,568	1,878	18.6	72.5	125.7	6,167
175	3,720	979	1,041	10.0	33.2	96.5	4,281
200	2,120	595	586	5.8	18.5	68.4	2,912
225	1,246	358	336	3.4	10.8	46.1	1,962
250	751	217	196	2.1	6.4	30	1,318
300	290	83	70	0.7	2.3	12.1	598
350	121	34	27	0.3	0.8	4.9	280
400	54	15	11	0.1	0.3	2.1	139
450	27	7.7	5.2	0.05	0.1	1.0	74
500	15	4.3	2.6	0.02	0.07	0.5	43
600	6.9	1.8	1.0	0.008	0.02	0.2	20
700	4	1	0.5	0.004	0.01	0.1	11
800	2.7	0.6	0.3	0.002	0.006	0.06	6.8
900	2.0	0.4	0.4	0.001	0.004	0.04	4.5
1,000	1.5	0.3	0.2	0.001	0.003	0.03	3.0

TABLE E-13

CALCULATED GROUND-LEVEL CONCENTRATIONS OF LEAD IN MONITORING WELLS AND OTHER LOCATIONS AS A FUNCTION OF TIME AND ASSUMING 500 YEARS OF LEACHING INTO GROUNDWATER
DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Concentration in Monitoring Wells (ppb)						
	MW 1-1	MW 8-1	(16,11)	MW 9-2	MW 15-1	MW 4-2	MW 18-1
Present	70	3.6	6	6	63	0.08	76
10	1,089	52.2	236	41.5	309.6	0.6	256.1
20	2,044	133	468	50.1	370	2.0	509
30	2,766	224	653	53	387	4.3	783
40	3,287	311	794	54.4	393	7.4	1,047
50	3,662	386	898	55.4	397	11.1	1,287
70	4,137	501	1,033	56.7	401	18.7	1,681
100	4,490	600	1,135	57.8	404	28.3	2,082
200	4,753	677	1,206	58.7	406	38.7	2,509
300	4,807	692	1,219	58.8	406	41.0	2,618
400	4,819	696	1,221	58.8	407	41.5	2,649
500	4,823	697	1,222	58.8	407	41.6	2,660
600	1,169	255	315	4.2	18.9	21.6	1,103
700	291	77	78	0.9	2.6	8.4	400
800	81	23	20	0.2	0.6	2.9	144
900	26	7	6	0.07	0.2	1.0	55
1,000	10	3	2	0.02	0.05	0.3	23

TABLE E-14

CALCULATED BENZENE CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Benzene Concentration (ppb)
Present	--
5	0.0072
10	0.0066
15	0.006
20	0.005
25	0.0047
30	0.0043
40	0.0032
60	0.002
80	0.0015
90	0.0014
100	0.0013
120	0.0012
160	0.001
200	0.001
250	0.001
300	0.001
400	0.001
500	0.001

TABLE E-15

CALCULATED VINYL CHLORIDE CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Vinyl Chloride Concentration (ppb)
Present	--
5	0.0077
10	0.0074
15	0.0067
20	0.0059
25	0.005
30	0.004
40	0.003
60	0.0012
80	0.0005
90	0.0003
100	0.0002
150	0.00005
200	0.00001
300	5×10^{-6}
500	3×10^{-6}

TABLE E-16

CALCULATED TRICHLOROETHENE CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Trichloroethene Concentration (ppb)
Present	--
5	0.0009
10	0.002
15	0.0024
20	0.003
25	0.004
30	0.0042
35	0.0047
40	0.005
50	0.0056
60	0.006
80	0.0064
100	0.007
150	0.007
200	0.007
300	0.007
500	0.007
800	0.007

TABLE E-17

CALCULATED 1,2-DICHLOROETHANE CONCENTRATIONS
IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME
DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	1,2-Dichloroethane Concentration (ppb)
Present	--
5	0.0017
10	0.0014
15	0.0013
20	0.0012
30	0.0013
40	0.0013
50	0.0013
70	0.0013
100	0.00132
150	0.00134
200	0.00134
400	0.00134
500	0.00134

TABLE E-18

CALCULATED PCB CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	PCB Concentration (ppb)
Present	--
5	0.00047
50	0.00047
100	0.00047
200	0.00047
600	0.00047
800	0.00047
1,000	0.00047

TABLE E-19

CALCULATED BIS(2-ETHYLHEXYL)PHTHALATE CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Bis(2-ethylhexyl)phthalate Concentration (ppb)
Present	--
5	~0
25	~0
50	~0
100	~0
250	~0
500	3.0×10^{-9}
700	3.0×10^{-9}
1,000	5.4×10^{-9}

TABLE E-20

CALCULATED LEAD CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME AND ASSUMING 100 YEARS OF LEACHING INTO GROUNDWATER
DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Lead Concentration (ppb)
Present	--
10	2.0
20	4.2
30	6.3
40	8.0
50	9.4
60	10.5
70	11.3
80	12.0
90	12.6
100	13.1
125	9.0
150	5.7
175	3.6
200	2.3
225	1.4
250	0.93
300	0.4
350	0.2
400	0.089
450	0.047
500	0.027
600	0.012
700	0.0069
800	0.0043
900	0.0029
1,000	0.002

TABLE E-21

CALCULATED LEAD CONCENTRATIONS IN THE SCHUYLKILL RIVER AS A FUNCTION OF TIME AND ASSUMING 500 YEARS OF LEACHING INTO GROUNDWATER
DOUGLASSVILLE DISPOSAL SITE

Time (yrs.)	Lead Concentration (ppb)
Present	--
10	0.4
20	0.9
30	1.3
40	1.6
50	1.9
70	2.3
100	2.6
200	3.0
300	3.0
400	3.0
500	3.0
600	1.0
700	0.3
800	0.1
900	0.04
1,000	0.02

TABLE E-22

HYDRAULIC CONDUCTIVITY VALUES USED
FOR THE COMPUTER MODEL
DOUGLASSVILLE DISPOSAL SITE

Well	Well Type*	Hydraulic Conductivity (ft/day)
MW1-1	O	5.1
MW1-2	B	9.1
MW1-3	DB	18.45
MW2-1	B	5.1
MW3-2	B	793.7
MW4-1	B	0.1
MW5-1	B	2.2
MW5-2	O	9.9
MW6-1	B	2.5
MW6-2	O	4.3
MW7-1	B	10.2
MW8-1	O	36.9
MW8-2	B	3.4
MW9-1	B	249.4
MW10-1	O	21.5
MW10-2	B	116.2
MW11-1	B	16.7
MW13-1	B	1.7
MW14-1	B	1.89
MW14-3	DB	2.78
MW15-1	O/B	5.13
MW15-2	B	4.37
MW15-3	DB	7.88
MW16-2	B	2.82
MW17-1	O/B	5.22
MW17-2	B	0.98

TABLE E-22
HYDRAULIC CONDUCTIVITY VALUES USED
FOR THE COMPUTER MODEL
DOUGLASSVILLE DISPOSAL SITE
PAGE TWO

Well	Well Type*	Hydraulic Conductivity (ft/day)
MW18-1	O/B	1.85
MW18-2	B	1.15
MW19-1	O/B	2.02
MW19-2	B	2.89
MW20-1	O/B	1.57
MW20-2	B	12.98

* O Overburden well
  B Bedrock well
  O/B Overburden and shallow bedrock
  DB Deep bedrock

SOURCE LOADING CALCULATIONS

NUS CORPORATION AND SUBSIDIARIES		STANDARD CALCULATION SHEET	
CLIENT: USEPA III	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 1
SUBJECT: SOURCE LOADING - GENERAL APPROACH		CHECKED BY: AEH	DATE: 06/01/88

It is desired that estimates of source loading terms be generated for the Douglassville Disposal site. The general approach employed is as follows:

1. Determine a representative concentration for each analyte at each test pit location.

2. A linear relationship between TCLP and TCL results was not evident. Hence the Organic Leaching Model will be used to equate leachate concentrations and soil/waste concentrations (EPA, July 1986):

$$C_{leachate} = 2.11 \times 10^{-3} \, C_{waste}^{0.678} \, S^{0.373}$$

where: $C_{leachate}$ = predicted leachate conc. (mg/L)
C_{waste} = measured soil/waste conc. (mg/kg)
S = water solubility of contaminant (mg/L)

3. Determine source loading terms based on theoretical leachate concentrations, the areal extent of the grid element of interest, and an assumed percolation rate.

Calculations are provided in the remainder of this appendix.

NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: USEPA III	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 2
SUBJECT: SOURCE LOADING - AVERAGE SOURCE CONCENTRATIONS		CHECKED BY: KMS	DATE: 06/01/8F

WEIGHTING FACTORS & WEIGHTED AVERAGE SOIL CONCENTRATIONS

SAMPLES WERE COLLECTED AT SIX SPECIFIC DEPTHS

EXAMPLE DS-TP_18-___

DS-TP118	1	0-1	1
DS-TP218	2	1-3.5	2.5
DS-TP318	3	3.5-7.5	4
DS-TP418	4	7.5-12.5	5
DS-TP518	5	12.5-17.5	5
DS-TP618	6	17.5-22.5	5

CLIENT: USEPA III	FILE NO.: 618Y	BY: RJH	PAGE 2 OF 2
SUBJECT: SOURCE LOADING - AVERAGE SOURCE CONC.		CHECKED BY:	DATE: 06/01/88

Determine Weighted Average Concentration:

Example calculation TP-18

TP118:
Aroclor 1260 880

TP218:
Aroclor 1260 860

TP318:
Aroclor 1260 0

TP418:
Aroclor 1260 0

TP518:
Aroclor 1260 810

TP618:
Aroclor 1260 820

Weighted Average:

$$\frac{1(880) + 2.5(860) + 4(0) + 5(0) + 5(810) + 5(820)}{1 + 2.5 + 4 + 5 + 5 + 5}$$

$= 496.9$

A computer program was used to generate all weighted averages.

Solubitities used to determine leachate concentrations for the Douglasssville Disposal Site.

CHEMICAL	SOLUBILITY (MG/L)	REFERENCE
acetone	600,000	3
2-butanone	353,000	1
2-hexanone	35,000	1
4-methyl-2-pentanone	19,000	1
benzene	1,780	2
toluene	535	2
ethylbenzene	152	2
total xylenes	187	1 (a)
chlorobenzene	488	2
nitrobenzene	1,900	2
hexachoroethane	50	2
1,1,2,2-tetrachloroethane	2,900	2
1,1,1-trichloroethane	720	2
1,2-dichloroethane	8,690	2
1,1-dichloroethane	5,500	2
chloroethane	5,740	2
tetrachloroethene	200	2
trichloroethene	1,100	2
1,2-dichloroethene	600	2
1,1-dichloroethene	400	2
vinyl chloride	2,700	2
carbon tetrachloride	785	2
chloroform	8,200	2
methylene chloride	20,000	2
chloromethane	6,450	2
bromomethane	900	2
fluorotrichloromethane	1,100	2
1,2-dichloropropane	2,700	2
carbon disulfide	2,300	1
bis(2-ethylhexyl)phthalate	0.4	2
di-n-octylphthalate	3.0	2
di-n-butyl phthalate	13	2
diethyl phthalate	896	2
butylbenzyl phthalate	2.9	2
acenapthene	3.42	2
anthracene	0.045	2
benzo(a)anthracene	0.0057	2
benzo(b)fluoranthene	0.014	2
benzo(k)flouranthene	0.0043	2
benzo(g,h,i)perylene	0.00026	2
benzo(a)pyrene	0.0038	2
chrysene	0.0018	2

dibenzo(a,h)anthracene	0.00054	2
fluoranthene	0.26	2
uorene	1.69	2
deno(1,2,3-cd)pyrene	0.00053	2
naphthalene	31.7	2
2-methylnaphthalene	28	1 (b)
phenanthrene	1.0	2
pyrene	0.13	2
1,2-dichlorobenzene	100	2
1,3-dichlorobenzene	123	2
1,4-dichlorobenzene	79	2
1,2,4-triclorobenzene	30	2
phenol	93,000	2
2-methylphenol	31,000	1
4-methylphenol	24,000	1
2,4-dimethylphenol	590	2
4-nitrophenol	16,000	2
2,4-dinitrophenol	5,600	2
2,4,5-trichlorophenol	1,190	1
2,4,6-trichlorophenol	800	2
pentachlorophenol	14	2
PCB 1242	0.23	2
PCB 1248	0.054	2
PBC 1254	0.031	2
1260	0.0027	2
beta-BHC	0.24	2
endosulfan sulfate	0.22	2
4,4'-DDT	0.0055	2
4,4'-DDD	0.09	2
4,4'-DDE	0.04	2
N-nitrosodiphenylamine		
benzyl alcohol	35,000	1
benzoic acid	2,900	1
4-nitroaniline	800	1
bis(2-chloroethyl)ether	10,200	2

a - Arithmetic average of ortho and para xylene
b - Value provided is for 1-methylnaphthalene

1. Verschueren, 1983.
2. EPA, December 1982.
3. Lyman, 1982. Equation 2-6.

NUS CORPORATION AND SUBSIDIARIES		STANDARD CALCULATION SHEET	
CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 1
SUBJECT: DOUGLASSVILLE - SOURCE LOADING		CHECKED BY: [illegible]	DATE: 06/06,

OBJECTIVE - Determine source loading for each grid element based on leachate concentrations, area of element, and daily percolation rate.

Example calculation:

Test Pit 04 - grid element 2:12 ; area = $(100)(50)\,ft^2$

Daily percolation rate = 3.7×10^{-3} ft/day as input to groundwater flow model.

Leachate concentration, bis(2-ethylhexyl)phthalate:

9.2×10^{-5} mg/L

Determine mass loading in lbs/day:

$$\frac{3.7\times10^{-3}\,ft}{day}\left|\frac{(100)(50)\,ft^2}{}\right|\frac{28.32\,L}{ft^3}\left|\frac{9.2\times10^{-5}\,mg}{L}\right|\frac{g}{1000\,mg}\left|\frac{lb}{454\,g}\right.$$

$= (2.31\times10^{-7})(A)(C_L)$ lbs/day

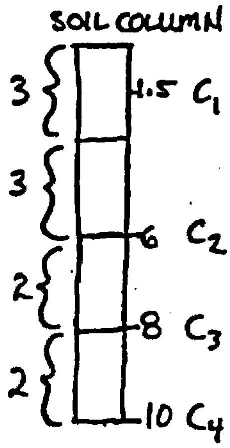
$= 1.1\times10^{-7}$ lbs/day ✓

NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 2
SUBJECT: LOADING GRID ELEMENT 17:10		CHECKED BY: LAS	DATE: 6/8/88

TP-7 DATA (1984) GRID ELEMENT AREA = $(100 \times 50) ft^2$

Samples were collected at depths of 1.5, 6, 8, and 10 feet. Weighted average concentrations are determined as follows



Weighted average concentration =

$$\frac{3C_1 + 3C_2 + 2C_3 + 2C_4}{3+3+2+2}$$

Detected chemicals and their depth-specific concentrations are as follows:

Chemical	1.5 feet	6 feet	8 feet	10 feet
toluene	ND	ND	11000	ND
total xylenes	ND	ND	12000	ND
methylene chloride	16	ND	ND	ND
di-n-octylphthalate	ND	1700	ND	ND
di-n-butylphthalate	ND	2400	ND	ND
naphthalene	ND	1400	ND	ND
2-methylnaphthalene	ND	2200	ND	ND
phenol	ND	2500	ND	ND
4-methylphenol	ND	560	ND	ND
aroclor 1260	98	2000	580	ND

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 2 OF 2
SUBJECT: LOADING GRID ELEMENT 17:10		CHECKED BY: LAS	DATE: 6/8/88

Weighted average concentrations, leachate concentrations, and loadings are as follows:

Chemical	Concentration (ug/kg)	Leachate Concentration (mg/L)	Loading (lbs/day)
toluene	2200 ✓	3.8×10^{-2}	4.3×10^{-5} ✓
total xylenes	2400 ✓	2.7×10^{-2}	3.1×10^{-5} ✓
methylene chloride	4.8 ✓	2.3×10^{-3}	2.6×10^{-6} ✓
di-n-octylphthalate	510 ✓	2.0×10^{-3}	2.3×10^{-6} ✓
di-n-butylphthalate	720 ✓	4.4×10^{-3}	5.1×10^{-6} ✓
naphthalene	420 ✓	4.3×10^{-3}	4.9×10^{-6} ✓
2-methylnaphthalene	660 ✓		
phenol	750 ✓	1.2×10^{-1}	1.4×10^{-4} ✓
4-methylphenol	168 ✓	2.7×10^{-2}	3.1×10^{-5} ✓
aroclor 1260	745.4 ✓	1.9×10^{-4}	2.2×10^{-7} ✓

NUS CORPORATION AND SUBSIDIARIES	STANDARD CALCULATION SHEET

CLIENT: USEPA	FILE NO.: 61BY	BY: RJH	PAGE 1 OF 1
SUBJECT: LOADING GRID ELEMENTS 16:13 / 17:13		CHECKED BY: LAS	DATE: 6/8/88

TP-6 DATA (1984) GRID ELEMENT AREAS = 72 x 50 ; 100 x 50 ft^2

One sample and a duplicate were obtained from this test pit. Maximum concentrations, leachate concentrations, and loadings are as follows:

Chemical	Concentration (µg/kg)	Leachate Conc. (mg/L)	Loading (16:13) (lbs/day)	Loading (17:13) (lbs/day)
toluene	12000	1.2×10^{-1}	1.0×10^{-4} ✓	1.4×10^{-4} ✓
ethylbenzene	12000	7.4×10^{-2}	6.2×10^{-5} ✓	8.6×10^{-5} ✓
total xylenes	38000	1.7×10^{-1}	1.4×10^{-4} ✓	2.0×10^{-4} ✓
tetrachloroethene	17000	1.0×10^{-1}	8.3×10^{-5}	1.2×10^{-4} ✓
bis(2-ethylhexyl)-phthalate	20000	1.1×10^{-2}	9.1×10^{-6}	1.3×10^{-5} ✓
benzo(K)fluoranthene	40000	3.4×10^{-3}	2.8×10^{-6} ✓	3.9×10^{-6} ✓
naphthalene	27000	7.2×10^{-2}	6.0×10^{-5} ✓	8.3×10^{-5} ✓
[illegible]ylnaphthalene	39000			
phenanthrene	6800	7.7×10^{-3}	6.4×10^{-6} ✓	8.9×10^{-6}
1,2,4-trichlorobenzene	12000	6.3×10^{-2}	5.2×10^{-5} ✓	7.3×10^{-5} ✓
N-nitrosodiphenylamine	2300			
aroclor 1254	4000	1.5×10^{-3}	1.2×10^{-6} ✓	1.7×10^{-6} ✓
aroclor 1260	3100	5.0×10^{-4}	4.2×10^{-7} ✓	6.0×10^{-7} ✓

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 1
SUBJECT: LOADING GRID ELEMENTS 17:14/17:15		CHECKED BY: LAB	DATE: 6/8/88

TP-2 DATA (1984) GRID ELEMENT AREAS = (100×100) ft^2

One sample was obtained from this test pit. Concentrations, leachate concentrations, and loadings are as follows:

Chemical	Concentration (µg/kg)	Leachate Conc. (mg/L)	Loading (lbs/day)
total xylenes	7.2	5.2×10^{-4}	1.2×10^{-6} ✓
methylene chloride	83	1.6×10^{-2}	3.6×10^{-5} ✓
aroclor 1260	680	1.8×10^{-4}	4.1×10^{-7} ✓

CLIENT: USEPA	FILE NO.: 6184	BY: RJH	PAGE 1 OF 1
SUBJECT: LOADING - GRID ELEMENTS REPORTED ON FOLLOWING STATISTICAL SUMMARIES		CHECKED BY: AEH	DATE: 10-14-88

Subsurface soil samples were obtained at depths of 2, 5, 10, 15, and 20 feet in numerous test pits. Weighted soil concentrations, leachate concentrations, and estimated loadings are presented on the following pages. A sample calculation is provided below:

Test Pit No. 10; benzene

Reported concentrations are as follows (Appendix D)

Sample No.	Depth (ft)	Concentration (ug/kg)
DS-TP210-138	2	0
DS-TP310-138	5	0
DS-TP410-138	10	0
DS-TP510-138	15	49

The sample obtained at 2 feet was assigned a weighting factor of 3.5 (0 ft to 3.5 ft). The sample obtained at 5 feet was assigned a weighting factor of 4.0 (3.5 ft to 7.5 feet). Sample obtained at depths of 10, 15, and 20 feet were assigned weighting factors of 5.0 (7.5 ft to 12.5 ft, 12.5 ft to 17.5 ft, and 17.5 ft to 22.5 ft, respectively).

Therefore the weighted-average benzene concentration is determined as:

$$C_{weighted} = \frac{3.5(0) + 4(0) + 5(0) + 5(49)}{3.5 + 4 + 5 + 5}$$

$$= 5(49)/17.5 = 14 \mu g/kg$$

The denominator in this calculation is reported in the "factor" column on the attached statistical summaries.

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 10 GRID ELEMENTS 20:8 AND 20:9 ; AREAS = (100 x 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	108-10-1	4-METHYL-2-PENTANONE	17.5	137.1430	2.2×10^{-2}	2.5×10^{-5}
4V	71-43-2	BENZENE	17.5	14.0000	1.9×10^{-3}	2.2×10^{-6}
86V	108-88-3	TOLUENE	17.5	172.0000	6.7×10^{-3}	7.7×10^{-6}
38V	100-41-4	ETHYLBENZENE	17.5	119.1430	3.2×10^{-3}	3.7×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	596.5710	1.0×10^{-2}	1.2×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	11.7140	1.2×10^{-3}	1.4×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	10.2860	2.8×10^{-3}	3.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	17.5	19.4290	1.1×10^{-3}	1.3×10^{-6}
87V	79-01-6	TRICHLOROETHENE	17.5	106.2860	6.3×10^{-3}	7.3×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	661.7140	1.1×10^{-3}	1.3×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	431.4290	3.1×10^{-3}	3.6×10^{-6}
1B	83-32-9	ACENAPHTHENE	17.5	428.5710	1.9×10^{-3}	2.2×10^{-6}
78B	120-12-7	ANTHRACENE	17.5	19.7140	4.6×10^{-5}	5.3×10^{-8}
76B	218-01-9	CHRYSENE	17.5	65.7140	3.2×10^{-5}	3.7×10^{-7}
39B	206-44-0	FLUORANTHENE	17.5	151.7710	3.6×10^{-4}	4.2×10^{-7}
80B	86-73-7	FLUORENE	17.5	109.8290	5.7×10^{-4}	6.6×10^{-7}
55B	91-20-3	NAPHTHALENE	17.5	2378.8570	1.4×10^{-2}	1.6×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	17.5	3737.1430		
81B	85-01-8	PHENANTHRENE	17.5	396.0000	1.1×10^{-3}	1.3×10^{-6}
84B	129-00-0	PYRENE	17.5	147.5710	2.7×10^{-4}	3.1×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	17.5	295.5430	5.1×10^{-3}	5.9×10^{-6}
27B	106-46-7	1,4-DICHLOROBENZENE	17.5	26.8570	9.3×10^{-4}	1.1×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	96.2290	1.5×10^{-3}	1.7×10^{-6}
65A	108-95-2	PHENOL	17.5	1771.4290	2.2×10^{-1}	2.5×10^{-4}
	95-48-7	2-METHYLPHENOL	17.5	628.5710	7.3×10^{-2}	8.4×10^{-5}
	106-44-5	4-METHYLPHENOL	17.5	1685.7140	1.3×10^{-1}	1.5×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	17.5	1028.5710	2.3×10^{-2}	2.7×10^{-5}
58A	100-02-7	4-NITROPHENOL	17.5	54.2860	1.1×10^{-2}	1.3×10^{-5}
111P	11096-82-5	AROCLOR-1260	17.5	528.2860	1.5×10^{-4}	1.7×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 15 GRID ELEMENT 4:11, AREA = (100 x 50)ft

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	12.5	2400.0000		
	591-78-6	2-HEXANONE	12.5	16.6000	6.5×10^{-3}	7.5×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	12.5	288.6000	3.6×10^{-2}	4.2×10^{-5}
4V	71-43-2	BENZENE	12.5	724.0000	2.8×10^{-2}	3.2×10^{-5}
86V	108-88-3	TOLUENE	12.5	19864.0000	1.7×10^{-1}	2.0×10^{-4}
38V	100-41-4	ETHYLBENZENE	12.5	15902.0000	9.0×10^{-2}	1.0×10^{-4}
	95-47-6	TOTAL XYLENES	12.5	82556.0000	3.0×10^{-1}	3.5×10^{-4}
11V	71-55-6	1,1,1-TRICHLOROETHANE	12.5	7.0400	8.5×10^{-4}	9.8×10^{-7}
10V	75-34-3	1,1-DICHLOROETHANE	12.5	22.0400	3.9×10^{-3}	4.5×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	12.5	10.2400	2.8×10^{-3}	3.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	12.5	18402.4000	1.1×10^{-1}	1.3×10^{-4}
87V	79-01-6	TRICHLOROETHENE	12.5	218440.8000	1.1×10^{0}	1.3×10^{-3}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	12.5	1283.4000	2.7×10^{-2}	3.1×10^{-5}
29V	75-35-4	1,1-DICHLOROETHENE	12.5	0.6400	1.3×10^{-4}	1.5×10^{-7}
88V	75-01-4	VINYL CHLORIDE	12.5	1.0000	3.7×10^{-4}	4.3×10^{-7}
44V	75-09-2	METHYLENE CHLORIDE	12.5	236.0000	3.2×10^{-2}	3.7×10^{-5}
32V	78-87-5	1,2-DICHLOROPROPANE	12.5	3.4400	8.6×10^{-4}	9.9×10^{-7}
	75-15-0	CARBON DISULFIDE	12.5	1.6000	4.8×10^{-4}	5.5×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	12.5	48000.0000	2.1×10^{-2}	2.4×10^{-5}
68B	84-74-2	DI-N-BUTYL PHTHALATE	12.5	20720.0000	4.3×10^{-2}	5.0×10^{-5}
70B	84-66-2	DIETHYL PHTHALATE	12.5	310.4000	1.2×10^{-2}	1.4×10^{-5}
67B	85-68-7	BUTYL BENZYL PHTHALATE	12.5	928.0000	3.0×10^{-3}	3.5×10^{-6}
1B	83-32-9	ACENAPHTHENE	12.5	285.6000	1.4×10^{-3}	1.6×10^{-6}
76B	218-01-9	CHRYSENE	12.5	1063.2000	2.1×10^{-4}	2.4×10^{-7}
39B	206-44-0	FLUORANTHENE	12.5	416.0000	7.0×10^{-4}	8.1×10^{-7}
80B	86-73-7	FLUORENE	12.5	1075.2000	2.7×10^{-3}	3.1×10^{-6}
55B	91-20-3	NAPHTHALENE	12.5	22200.0000	6.3×10^{-2}	7.3×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	12.5	19520.0000		
81B	85-01-8	PHENANTHRENE	12.5	2264.0000	3.7×10^{-3}	4.3×10^{-6}
84B	129-00-0	PYRENE	12.5	1092.0000	1.0×10^{-3}	1.2×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	12.5	2012.0000	1.9×10^{-2}	2.2×10^{-5}
27B	106-46-7	1,4-DICHLOROBENZENE	12.5	140.8000	2.9×10^{-3}	3.3×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	12.5	1780.0000	1.1×10^{-2}	1.3×10^{-5}
65A	108-95-2	PHENOL	12.5	1088.0000	1.6×10^{-1}	1.8×10^{-4}
	95-48-7	2-METHYLPHENOL	12.5	1120.0000	1.1×10^{-1}	1.3×10^{-4}
	106-44-5	4-METHYLPHENOL	12.5	4160.0000	2.4×10^{-1}	2.8×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	12.5	3520.0000	5.4×10^{-2}	6.2×10^{-5}
	95-95-4	2,4,5-TRICHLOROPHENOL	12.5	448.0000	1.7×10^{-2}	2.0×10^{-5}
97P	1031-07-8	ENDOSUFAN SULFATE	12.5	1.6800	1.6×10^{-5}	1.8×10^{-8}
106P	53469-21-9	AROCLOR-1242	12.5	500.0000	7.6×10^{-4}	8.8×10^{-7}
107P	11097-69-1	AROCLOR-1254	12.5	2312.0000	4.1×10^{-4}	4.7×10^{-7}

AR303096

S1 AL ANALYSIS FOR SAMPLE TYPE: TEST PIT 14 GRID ELEMENT 5:13 ; AREA = (83 x 50) ft²

P Nu	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	108-10-1	4-METHYL-2-PENTANONE	17.5	14.1710	4.6×10^{-3}	4.4×10^{-6}
86V	108-88-3	TOLUENE	17.5	11.7140	1.1×10^{-3}	1.1×10^{-6}
38V	100-41-4	ETHYLBENZENE	17.5	50.8570	1.8×10^{-3}	1.7×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	119.4860	3.5×10^{-3}	3.4×10^{-6}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	1.1430	2.5×10^{-4}	2.4×10^{-7}
10V	75-34-3	1,1-DICHLOROETHANE	17.5	1.1430	5.3×10^{-4}	5.1×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	0.7430	4.7×10^{-4}	4.5×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	17.5	20.4570	1.1×10^{-3}	1.1×10^{-6}
87V	79-01-6	TRICHLOROETHENE	17.5	12.2570	1.5×10^{-3}	1.4×10^{-6}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	7.9710	8.7×10^{-4}	8.3×10^{-7}
88V	75-01-4	VINYL CHLORIDE	17.5	4.5710	1.0×10^{-3}	9.6×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	110.2860	3.4×10^{-4}	3.3×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	12.0000	2.7×10^{-4}	2.6×10^{-7}
67B	85-68-7	BUTYL BENZYL PHTHALATE	17.5	800.0000	2.7×10^{-3}	2.6×10^{-6}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	80.0000	5.5×10^{-5}	5.3×10^{-8}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	434.2860	2.4×10^{-4}	2.3×10^{-7}
	207-08-9	BENZO(K)FLUORANTHENE	17.5	205.7140	9.5×10^{-5}	9.1×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	17.5	155.4290	7.5×10^{-5}	7.2×10^{-8}
76B	218-01-9	CHRYSENE	17.5	1760.0000	2.9×10^{-4}	2.8×10^{-7}
39B	206-44-0	FLUORANTHENE	17.5	798.5140	1.1×10^{-3}	1.1×10^{-6}
80B	86-73-7	FLUORENE	17.5	58.5710	3.7×10^{-4}	3.5×10^{-7}
55B	91-20-3	NAPHTHALENE	17.5	611.4290	5.5×10^{-3}	5.3×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	17.5	1143.0860		
81B	85-01-8	PHENANTHRENE	17.5	647.6570	2.3×10^{-3}	2.2×10^{-6}
84B	129-00-0	PYRENE	17.5	1248.5710	1.1×10^{-3}	1.1×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	17.5	138.5710	3.1×10^{-3}	3.0×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	88.5710	1.5×10^{-3}	1.4×10^{-6}
	100-01-6	4-NITROANILINE	17.5	144.0000	6.9×10^{-3}	6.6×10^{-6}
	65-85-0	BENZOIC ACID	17.5	914.2860	3.9×10^{-2}	3.7×10^{-5}
	95-48-7	2-METHYLPHENOL	17.5	65.7140	1.6×10^{-2}	1.5×10^{-5}
	106-44-5	4-METHYLPHENOL	17.5	238.8570	3.4×10^{-2}	3.3×10^{-5}
111P	11096-82-5	AROCLOR-1260	17.5	2648.5710	4.5×10^{-4}	4.3×10^{-7}

STATION ANALYSIS FOR SAMPLE TYPE: TEST PIT 15 GRID ELEMENTS 19:12 AND 19:13; AREAS = (100 x 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	17.5	1600.0000		
	591-78-6	2-HEXANONE	17.5	138.2860	2.7×10^{-2}	3.1×10^{-5}
	108-10-1	4-METHYL-2-PENTANONE	17.5	1445.7140	1.1×10^{-1}	1.3×10^{-4}
4V	71-43-2	BENZENE	17.5	564.5710	2.3×10^{-2}	2.7×10^{-5}
86V	108-88-3	TOLUENE	17.5	4850.2860	6.4×10^{-2}	7.4×10^{-5}
38V	100-41-4	ETHYLBENZENE	17.5	2189.1430	2.3×10^{-2}	2.7×10^{-5}
	95-47-6	TOTAL XYLENES	17.5	1475.2860	1.9×10^{-2}	2.2×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	981.1430	2.4×10^{-2}	2.8×10^{-5}
10V	75-34-3	1,1-DICHLOROETHANE	17.5	1.1430	5.3×10^{-4}	6.1×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	862.8570	5.6×10^{-2}	6.5×10^{-5}
16V	75-00-3	CHLOROETHANE	17.5	2049.7140	8.7×10^{-2}	1.0×10^{-4}
85V	127-18-4	TETRACHLOROETHENE	17.5	1676.3710	2.2×10^{-2}	2.5×10^{-5}
87V	79-01-6	TRICHLOROETHENE	17.5	3905.2570	7.2×10^{-2}	8.3×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	0.5710	1.5×10^{-4}	1.7×10^{-7}
29V	75-35-4	1,1-DICHLOROETHENE	17.5	0.2860	7.8×10^{-5}	9.0×10^{-8}
44V	75-09-2	METHYLENE CHLORIDE	17.5	260.0000	3.4×10^{-2}	3.9×10^{-5}
45V	74-87-3	CHLOROMETHANE	17.5	3.0860	1.1×10^{-3}	1.3×10^{-6}
32V	78-87-5	1,2-DICHLOROPROPANE	17.5	166.5710	1.2×10^{-2}	1.4×10^{-5}
46V	74-83-9	BROMOMETHANE	17.5	372.5710	1.4×10^{-2}	1.6×10^{-5}
	75-15-0	CARBON DISULFIDE	17.5	4.5710	9.8×10^{-4}	1.1×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	4971.4290	4.4×10^{-3}	5.1×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	1925.7140	8.6×10^{-3}	9.9×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	17.5	4000.0000	8.0×10^{-3}	9.2×10^{-6}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	2000.0000	4.9×10^{-4}	5.7×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	14.2860	2.4×10^{-5}	2.8×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	17.5	14.2860	1.6×10^{-5}	1.8×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	17.5	33.7140	9.7×10^{-6}	1.1×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	17.5	21.7140	2.0×10^{-5}	2.3×10^{-8}
76B	218-01-9	CHRYSENE	17.5	3738.2860	4.9×10^{-4}	5.7×10^{-7}
39B	206-44-0	FLUORANTHENE	17.5	4264.8570	1.6×10^{-2}	1.8×10^{-5}
80B	86-73-7	FLUORENE	17.5	34.2860	2.6×10^{-4}	3.0×10^{-7}
55B	91-20-3	NAPHTHALENE	17.5	33851.4290	8.3×10^{-2}	9.6×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	17.5	31954.2860		
81B	85-01-8	PHENANTHRENE	17.5	7848.0000	8.5×10^{-3}	9.8×10^{-6}
84B	129-00-0	PYRENE	17.5	4143.4290	2.6×10^{-3}	3.0×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	17.5	4782.8570	3.4×10^{-2}	3.9×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	3346.2860	1.7×10^{-2}	2.0×10^{-5}
	65-85-0	BENZOIC ACID	17.5	29142.8570	4.1×10^{-1}	4.7×10^{-4}
65A	108-95-2	PHENOL	17.5	27862.8570	1.4×10^{0}	1.6×10^{-3}
	95-48-7	2-METHYLPHENOL	17.5	1661.7140	1.4×10^{-1}	1.6×10^{-4}
	106-44-5	4-METHYLPHENOL	17.5	11474.2860	4.7×10^{-1}	5.4×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	17.5	5177.1430	7.0×10^{-2}	8.1×10^{-5}
	12672-29	AROCLOR-1248	17.5	7142.8570	2.7×10^{-3}	3.1×10^{-6}
107P	11097-69-1	AROCLOR-1254	17.5	445.7140	3.3×10^{-4}	3.8×10^{-7}
111P	11096-82-5	AROCLOR-1260	17.5	4616.0000	6.6×10^{-4}	7.6×10^{-7}

STATI ANALYSIS FOR SAMPLE TYPE: TEST PIT 17 GRID ELEMENTS 3:7 AND 4:7; AREAS = (100 x 100) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	17.5	120.5710		
	78-93-3	2-BUTANONE	17.5	63.7140	3.8×10^{-2}	8.8×10^{-5}
	591-78-6	2-HEXANONE	17.5	4.5710	2.7×10^{-3}	6.2×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	17.5	4.8000	2.2×10^{-3}	5.1×10^{-6}
4V	71-43-2	BENZENE	17.5	8.6570	1.4×10^{-3}	3.2×10^{-6}
86V	108-88-3	TOLUENE	17.5	56.4000	9.1×10^{-3}	7.2×10^{-6}
38V	100-41-4	ETHYLBENZENE	17.5	12.4000	7.0×10^{-4}	1.6×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	55.3140	2.1×10^{-3}	4.9×10^{-6}
7V	108-90-7	CHLOROBENZENE	17.5	3.4290	4.5×10^{-4}	1.0×10^{-6}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	13.6290	1.3×10^{-3}	3.0×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	17.5	0.9140	4.6×10^{-4}	1.1×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	123.9430	1.5×10^{-2}	3.5×10^{-5}
85V	127-18-4	TETRACHLOROETHENE	17.5	6.6860	5.1×10^{-4}	1.2×10^{-6}
87V	79-01-6	TRICHLOROETHENE	17.5	29.1430	2.6×10^{-3}	6.0×10^{-6}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	4.1140	5.5×10^{-4}	1.3×10^{-6}
29V	75-35-4	1,1-DICHLOROETHENE	17.5	0.5710	1.2×10^{-4}	2.8×10^{-7}
	75-15-0	CARBON DISULFIDE	17.5	0.2290	1.3×10^{-4}	3.0×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	452.0000	8.8×10^{-4}	2.0×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	18.5710	3.7×10^{-4}	8.5×10^{-7}
1B	83-32-9	ACENAPHTHENE	17.5	77.1430	5.9×10^{-4}	1.4×10^{-6}
78B	120-12-7	ANTHRACENE	17.5	71.4290	1.1×10^{-4}	2.5×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	300.6290	1.4×10^{-4}	3.2×10^{-7}
73B	50-32-8	BENZO(A)PYRENE	17.5	123.4290	6.4×10^{-5}	1.5×10^{-7}
76B	218-01-9	CHRYSENE	17.5	4.5140	5.1×10^{-6}	1.2×10^{-8}
39B	206-44-0	FLUORANTHENE	17.5	292.1710	5.5×10^{-4}	1.3×10^{-6}
80B	86-73-7	FLUORENE	17.5	255.1430	1.0×10^{-3}	2.3×10^{-6}
55B	91-20-3	NAPHTHALENE	17.5	146.2860	2.1×10^{-3}	4.9×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	17.5	206.6290		
81B	85-01-8	PHENANTHRENE	17.5	677.7140	1.6×10^{-3}	3.7×10^{-6}
84B	129-00-0	PYRENE	17.5	452.5710	5.8×10^{-4}	1.3×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	17.5	191.4290	3.8×10^{-3}	8.8×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	82.2860	1.4×10^{-3}	3.2×10^{-6}
	65-85-0	BENZOIC ACID	17.5	5142.8570	1.3×10^{-1}	3.0×10^{-4}
34A	105-67-[illegible]	,4-DIMETHYLPHENOL	17.5	2194.2860	3.9×10^{-2}	9.0×10^{-5}
107P	11097-69-[illegible]	AROCLOR-1254	17.5	2874.2860	1.2×10^{-3}	2.8×10^{-5}
[illegible]	[illegible]	[illegible]	17.5	[illegible]	1.8×10^{-2}	4.7×10^{-5}

AR303099

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 19 GRID ELEMENTS 5:9 AND 5:10; AREAS = (83 x 50) ft²

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	22.5	1133.3330		
	78-93-3	2-BUTANONE	22.5	2.8440	4.6×10^{-3}	4.4×10^{-6}
	591-78-6	2-HEXANONE	22.5	20.4440	7.5×10^{-3}	7.2×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	22.5	134.1330	2.1×10^{-2}	2.0×10^{-5}
4V	71-43-2	BENZENE	22.5	16.0000	2.1×10^{-3}	2.0×10^{-6}
86V	108-88-3	TOLUENE	22.5	2155.2000	3.7×10^{-2}	3.5×10^{-5}
38V	100-41-4	ETHYLBENZENE	22.5	5400.8000	4.3×10^{-2}	4.1×10^{-5}
	95-47-6	TOTAL XYLENES	22.5	25657.9560	1.5×10^{-1}	1.4×10^{-4}
11V	71-55-6	1,1,1-TRICHLOROETHANE	22.5	1.3330	2.8×10^{-4}	2.7×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	22.5	28.4890	5.6×10^{-3}	5.4×10^{-6}
16V	75-00-3	CHLOROETHANE	22.5	51.8220	7.2×10^{-3}	6.9×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	22.5	585.6440	1.1×10^{-2}	1.1×10^{-5}
87V	79-01-6	TRICHLOROETHENE	22.5	764.8890	2.4×10^{-2}	2.3×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	22.5	1.1110	2.3×10^{-4}	2.2×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	1755.5560	2.2×10^{-3}	2.1×10^{-6}
76B	218-01-9	CHRYSENE	22.5	33.7780	2.0×10^{-5}	1.9×10^{-8}
39B	206-44-0	FLUORANTHENE	22.5	1583.5560	1.7×10^{-3}	1.6×10^{-6}
80B	86-73-7	FLUORENE	22.5	331.1110	6.0×10^{-4}	5.8×10^{-7}
55B	91-20-3	NAPHTHALENE	22.5	15594.6670	4.9×10^{-2}	4.7×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	22.5	22536.8890		
81B	85-01-8	PHENANTHRENE	22.5	2852.4440	4.3×10^{-3}	4.1×10^{-6}
84B	129-00-0	PYRENE	22.5	1337.3330	1.2×10^{-3}	1.2×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	22.5	3244.4440	2.6×10^{-2}	2.5×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	22.5	296.0000	3.3×10^{-3}	3.2×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	22.5	19.5560		
	100-51-6	BENZYL ALCOHOL	22.5	600.0000	7.4×10^{-2}	7.1×10^{-5}
	132-64-9	DIBENZOFURAN	22.5	124.4440		
	106-44-5	4-METHYLPHENOL	22.5	1644.4440	1.3×10^{-1}	1.2×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	22.5	2958.2220	4.8×10^{-2}	4.6×10^{-5}
	12672-29	AROCLOR-1248	22.5	400.0000	3.8×10^{-4}	3.6×10^{-7}
	1096-82-5	AROCLOR-1260	22.5	18488.8890	1.7×10^{-3}	1.6×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 21 GRID ELEMENTS 6:13 AND 7:13; AREAS = (83 x 50) & (69 x 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (6:13) (lbs/day)	LOADING (7:13) (lbs/day)
	67-64-1	ACETONE	17.5	301.4290			
	591-78-6	2-HEXANONE	17.5	19.6570	7.3×10^{-3}	7.0×10^{-6}	5.8×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	17.5	22.4000	6.3×10^{-3}	6.0×10^{-6}	5.0×10^{-6}
4V	71-43-2	BENZENE	17.5	6.3710	1.1×10^{-3}	1.1×10^{-6}	8.8×10^{-7}
86V	108-88-3	TOLUENE	17.5	17.4290	1.4×10^{-3}	1.3×10^{-6}	1.1×10^{-6}
38V	100-41-4	ETHYLBENZENE	17.5	350.7430	6.8×10^{-3}	6.5×10^{-6}	5.4×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	147.3710	4.1×10^{-3}	3.9×10^{-6}	3.3×10^{-6}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	17.5	5.1430	1.2×10^{-3}	1.2×10^{-6}	9.6×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	17.5	3.5430	3.3×10^{-4}	3.2×10^{-7}	2.6×10^{-7}
87V	79-01-6	TRICHLOROETHENE	17.5	5.5140	8.5×10^{-4}	8.1×10^{-7}	6.8×10^{-7}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	1.4290	2.7×10^{-4}	2.6×10^{-7}	2.2×10^{-7}
	75-15-0	CARBON DISULFIDE	17.5	0.2860	1.5×10^{-4}	1.4×10^{-7}	1.2×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	342.8570	2.7×10^{-3}	2.6×10^{-6}	2.2×10^{-6}
76B	218-01-9	CHRYSENE	17.5	62.8570	3.1×10^{-5}	3.0×10^{-8}	2.5×10^{-8}
39B	206-44-0	FLUORANTHENE	17.5	1782.8570	1.9×10^{-3}	1.8×10^{-6}	1.5×10^{-6}
55B	91-20-3	NAPHTHALENE	17.5	1328.5710	9.3×10^{-3}	8.9×10^{-6}	7.4×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	17.5	2771.4290			
81B	85-01-8	PHENANTHRENE	17.5	2768.5710	4.2×10^{-3}	4.0×10^{-6}	3.3×10^{-6}
84B	129-00-0	PYRENE	17.5	3411.4290	2.3×10^{-3}	2.2×10^{-6}	1.8×10^{-6}
12B	67-72-1	HEXACHLOROETHANE	17.5	771.4290	7.6×10^{-3}	7.3×10^{-6}	6.1×10^{-6}
111P	11096-82-5	AROCLOR-1260	17.5	1774.2860	3.4×10^{-4}	3.3×10^{-7}	2.7×10^{-7}

AR303101

STATISTICAL A[illegible]IS FOR SAMPLE TYPE: TEST PIT 22 GRID ELEMENT 21:6; $A = (100 \times 100)\,ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	591-78-6	2-HEXANONE	17.5	9.1430	4.3×10^{-3}	9.9×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	17.5	35.8860	8.7×10^{-3}	2.0×10^{-5}
4V	71-43-2	BENZENE	17.5	40.2860	3.9×10^{-3}	9.0×10^{-6}
86V	108-88-3	TOLUENE	17.5	256.0000	8.7×10^{-3}	2.0×10^{-5}
38V	100-41-4	ETHYLBENZENE	17.5	83.7140	2.6×10^{-3}	6.0×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	410.2860	8.1×10^{-3}	1.9×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	33.0290	2.4×10^{-3}	5.5×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	17.5	14.5710	3.0×10^{-3}	6.9×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	31.2570	5.9×10^{-3}	1.4×10^{-5}
16V	75-00-3	CHLOROETHANE	17.5	7.1430	1.9×10^{-3}	4.4×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	17.5	60.0000	2.3×10^{-3}	5.3×10^{-6}
87V	79-01-6	TRICHLOROETHENE	17.5	276.6290	1.2×10^{-2}	2.8×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	26.5710	2.0×10^{-3}	4.6×10^{-6}
32V	78-87-5	1,2-DICHLOROPROPANE	17.5	6.0000	1.3×10^{-3}	3.0×10^{-6}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	3664.5710	7.4×10^{-4}	1.7×10^{-6}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	42.8570	5.1×10^{-5}	1.2×10^{-7}
	207-08-9	BENZO(K)FLUORANTHENE	17.5	42.8570	3.3×10^{-5}	7.6×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	17.5	48.5710	3.4×10^{-5}	7.9×10^{-8}
76B	218-01-9	CHRYSENE	17.5	5257.1430	6.2×10^{-4}	1.4×10^{-6}
39B	206-44-0	FLUORANTHENE	17.5	4228.5710	3.4×10^{-3}	7.9×10^{-6}
55B	91-20-3	NAPHTHALENE	17.5	7857.1430	3.1×10^{-2}	7.2×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	17.5	12800.0000		
81B	85-01-8	PHENANTHRENE	17.5	3954.2860	5.4×10^{-3}	1.2×10^{-5}
84B	129-00-0	PYRENE	17.5	3725.4290	2.4×10^{-3}	5.5×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	17.5	828.5710	1.0×10^{-2}	2.3×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	1285.7140	8.9×10^{-3}	2.1×10^{-5}
	65-85-0	BENZOIC ACID	17.5	4285.7140	1.1×10^{-1}	2.5×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	17.5	3411.4290	5.2×10^{-2}	1.2×10^{-4}
107P	11097-69-1	AROCLOR-1254	17.5	2285.7140	1.0×10^{-3}	2.3×10^{-6}
111P	11096-82-5	AROCLOR-1260	17.5	27504.2860	2.2×10^{-3}	5.1×10^{-6}

AL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENT 5:12; AREA = (83x50) ft^2

	I NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	4	5175.0000	3.6×10^{2}		
	78-93-3	2-BUTANONE	3	133.0000	7.0×10^{0}	8.6×10^{-3}	8.2×10^{-6}
	591-78-6	2-HEXANONE	5	52.2000	4.6×10^{0}	2.7×10^{-3}	2.6×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	8	172.5000	2.4×10^{1}	6.6×10^{-3}	6.3×10^{-6}
4V	71-43-2	BENZENE	10	489.5000	8.6×10^{1}	6.5×10^{-3}	6.2×10^{-6}
86V	108-88-3	TOLUENE	17	3963.7600	1.2×10^{3}	2.5×10^{-2}	2.4×10^{-5}
38V	100-41-4	ETHYLBENZENE	23	2567.4800	1.0×10^{3}	1.4×10^{-2}	1.3×10^{-5}
	95-47-6	TOTAL XYLENES	21	12767.0500	4.7×10^{3}	4.2×10^{-2}	4.0×10^{-5}
7V	108-90-7	CHLOROBENZENE	3	5.3300	2.8×10^{-1}	8.3×10^{-5}	8.0×10^{-8}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1.0000	1.8×10^{-2}	2.5×10^{-5}	2.4×10^{-8}
11V	71-55-6	1,1,1-TRICHLOROETHANE	6	52.4700	5.5×10^{0}	7.2×10^{-4}	6.9×10^{-7}
10V	75-34-3	1,1-DICHLOROETHANE	5	221.2000	1.9×10^{1}	3.6×10^{-3}	3.5×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	7	172.4300	2.1×10^{1}	4.5×10^{-3}	4.3×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	16	3264.3100	3.2×10^{2}	1.4×10^{-2}	1.3×10^{-5}
87V	79-01-6	TRICHLOROETHENE	15	46231.0700	1.2×10^{4}	1.6×10^{-1}	1.5×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	10	518.9000	9.1×10^{1}	4.5×10^{-3}	4.3×10^{-6}
29V	75-35-4	1,1-DICHLOROETHENE	2	3.0000	1.1×10^{-1}	4.1×10^{-5}	3.9×10^{-8}
88V	75-01-4	VINYL CHLORIDE	2	12.5000	4.4×10^{-1}	2.1×10^{-4}	2.0×10^{-7}
23V	67-66-3	CHLOROFORM	3	51.3300	2.7×10^{0}	1.1×10^{-3}	1.1×10^{-6}
44V	75-09-2	METHYLENE CHLORIDE	3	525.0000	2.8×10^{1}	7.5×10^{-3}	7.2×10^{-6}
32V	78-87-5	1,2-DICHLOROPROPANE	2	6.5000	2.3×10^{-1}	1.4×10^{-4}	1.3×10^{-7}
46V	74-83-9	BROMOMETHANE	1	2.0000	3.5×10^{-2}	2.5×10^{-5}	2.4×10^{-8}
	75-15-0	CARBON DISULFIDE	2	3.0000	1.1×10^{-1}	7.8×10^{-5}	7.5×10^{-8}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	19	9041.4200	3.0×10^{3}	3.2×10^{-3}	3.1×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	7	9242.4300	1.1×10^{3}	5.9×10^{-3}	5.7×10^{-6}
70B	84-66-2	DIETHYL PHTHALATE	3	1300.0000	6.8×10^{1}	4.3×10^{-3}	4.1×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	3	2150.0000	1.1×10^{2}	7.0×10^{-4}	6.7×10^{-7}
1B	83-32-9	ACENAPHTHENE	6	540.0000	5.7×10^{1}	4.8×10^{-4}	4.6×10^{-7}
78B	120-12-7	ANTHRACENE	6	201.5000	2.1×10^{1}	4.8×10^{-5}	4.6×10^{-8}
72B	56-55-3	BENZO(A)ANTHRACENE	7	788.0000	9.7×10^{1}	6.3×10^{-5}	6.0×10^{-8}
74B	205-99-2	BENZO(B)FLUORANTHENE	3	715.3300	9.8×10^{1}	4.7×10^{-5}	4.5×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	3	382.0000	2.0×10^{1}	1.9×10^{-5}	1.8×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	1	670.0000	1.2×10^{1}	4.8×10^{-6}	4.6×10^{-9}
73B	50-32-8	BENZO(A)PYRENE	3	440.0000	2.4×10^{1}	2.1×10^{-5}	2.0×10^{-8}
76B	218-01-9	CHRYSENE	13	2276.8500	5.2×10^{2}	1.3×10^{-4}	1.2×10^{-7}
39B	206-44-0	FLUORANTHENE	23	829.1700	3.3×10^{2}	6.0×10^{-4}	5.8×10^{-7}
80B	86-73-7	FLUORENE	13	873.8500	2.0×10^{2}	8.6×10^{-4}	8.2×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	1	120.0000	2.1×10^{0}	1.9×10^{-6}	1.8×10^{-9}
55B	91-20-3	NAPHTHALENE	18	6465.5000	2.1×10^{3}	1.3×10^{-2}	1.2×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	24	7192.5000	3.0×10^{3}		
81B	85-01-8	PHENANTHRENE	27	1708.2400	8.1×10^{2}	1.8×10^{-3}	1.7×10^{-6}
84B	129-00-0	PYRENE	25	1019.8800	4.5×10^{2}	5.7×10^{-4}	5.5×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	13	1057.7700	2.4×10^{2}	4.5×10^{-3}	4.3×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	1	170.0000	3.0×10^{0}	2.6×10^{-4}	2.4×10^{-7}
27B	106-46-7	1,4-DICHLOROBENZENE	3	560.0000	2.9×10^{1}	9.8×10^{-4}	9.4×10^{-7}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	16	1135.3100	3.2×10^{2}	3.5×10^{-3}	3.2×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	6400.0000	1.2×10^{2}		
	100-01-6	4-NITROANILINE	1	630.0000	1.1×10^{1}	1.2×10^{-3}	1.2×10^{-6}
	65-85-0	BENZOIC ACID	5	8630.6000	7.6×10^{2}	3.4×10^{-2}	3.3×10^{-5}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENT ..12; AREA = (83 x 50) ft²

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (μg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	132-64-9	DIBENZOFURAN	1	1100.0000	1.9×10^{1}	2.4×10^{-2}	2.3×10^{-5}
65A	108-95-2	PHENOL	2	1050.0000	6.5×10^{1}	2.5×10^{-2}	2.4×10^{-5}
	95-48-7	2-METHYLPHENOL	4	1808.0000	1.3×10^{2}	4.1×10^{-2}	3.9×10^{-5}
	106-44-5	4-METHYLPHENOL	6	2943.3300	3.1×10^{2}	1.2×10^{-2}	1.2×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	3	6956.6700	3.7×10^{2}	2.4×10^{-3}	2.3×10^{-6}
	95-95-4	2,4,5-TRICHLOROPHENOL	1	1400.0000	2.5×10^{1}	4.6×10^{-3}	4.4×10^{-6}
64A	87-86-5	PENTACHLOROPHENOL	4	10423.0000	7.3×10^{2}		
100P	76-44-8	HEPTACHLOR	1	14.0000	2.5×10^{-1}	3.7×10^{-4}	3.5×10^{-7}
97P	1031-07-8	ENDOSUFAN SULFATE	1	21.0000	3.7×10^{-1}	1.5×10^{-4}	1.4×10^{-7}
106P	53469-21-9	AROCLOR-1242	1	2500.0000	4.4×10^{1}	4.0×10^{-4}	3.8×10^{-7}
	12672-29	AROCLOR-1248	6	4080.0000	4.3×10^{2}	5.7×10^{-4}	5.5×10^{-7}
107P	11097-69-1	AROCLOR-1254	11	5137.2700	9.9×10^{2}	2.8×10^{-4}	2.7×10^{-7}
111P	11096-82-5	AROCLOR-1260	21	3592.3800	1.3×10^{3}		

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L ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENTS 3:6 AND 3:14 ; AREAS = (100 x 100) ft^2

	I NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	4	5175.0000	3.6×10^{2}		
	78-93-3	2-BUTANONE	3	133.0000	7.0×10^{0}	8.6×10^{-3}	2.0×10^{-5}
	591-78-6	2-HEXANONE	5	52.2000	4.6×10^{0}	2.7×10^{-3}	6.2×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	8	172.5000	3.4×10^{1}	6.6×10^{-3}	1.5×10^{-5}
4V	71-43-2	BENZENE	10	489.5000	8.6×10^{1}	6.5×10^{-3}	1.5×10^{-5}
86V	108-88-3	TOLUENE	17	3963.7600	1.2×10^{3}	2.5×10^{-2}	5.8×10^{-5}
38V	100-41-4	ETHYLBENZENE	23	2567.4800	1.0×10^{3}	1.4×10^{-2}	9.2×10^{-5}
	95-47-6	TOTAL XYLENES	21	12767.0500	4.7×10^{3}	4.2×10^{-2}	9.7×10^{-5}
7V	108-90-7	CHLOROBENZENE	3	5.3300	2.8×10^{-1}	8.3×10^{-5}	1.9×10^{-7}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1.0000	1.8×10^{-2}	2.5×10^{-5}	5.8×10^{-8}
11V	71-55-6	1,1,1-TRICHLOROETHANE	6	52.6700	5.5×10^{0}	7.2×10^{-4}	1.7×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	5	221.2000	1.9×10^{1}	3.6×10^{-3}	8.3×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	7	172.4300	2.1×10^{1}	4.5×10^{-3}	1.0×10^{-5}
85V	127-18-4	TETRACHLOROETHENE	16	3264.3100	9.2×10^{2}	1.4×10^{-2}	2.2×10^{-5}
87V	79-01-6	TRICHLOROETHENE	15	46231.0700	1.2×10^{4}	1.6×10^{-1}	3.7×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	10	518.9000	9.1×10^{1}	4.5×10^{-3}	1.0×10^{-5}
29V	75-35-4	1,1-DICHLOROETHENE	2	3.0000	1.1×10^{-1}	4.1×10^{-5}	9.5×10^{-8}
88V	75-01-4	VINYL CHLORIDE	2	12.5000	4.4×10^{-1}	2.1×10^{-4}	4.9×10^{-7}
23V	67-66-3	CHLOROFORM	3	51.3300	2.7×10^{0}	1.1×10^{-3}	2.5×10^{-6}
44V	75-09-2	METHYLENE CHLORIDE	3	525.0000	2.8×10^{1}	7.5×10^{-3}	1.7×10^{-5}
32V	78-87-5	1,2-DICHLOROPROPANE	2	6.5000	2.3×10^{-1}	1.4×10^{-4}	3.2×10^{-7}
46V	74-83-9	BROMOMETHANE	1	2.0000	3.5×10^{-2}	2.5×10^{-5}	5.8×10^{-8}
	75-15-0	CARBON DISULFIDE	2	3.0000	1.1×10^{-1}	1.8×10^{-5}	1.8×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	19	9041.4200	3.0×10^{3}	3.2×10^{-3}	7.4×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	7	9242.4300	1.1×10^{3}	5.9×10^{-3}	1.4×10^{-5}
70B	84-66-2	DIETHYL PHTHALATE	3	1300.0000	6.8×10^{1}	4.3×10^{-3}	9.9×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	3	2150.0000	1.1×10^{2}	7.0×10^{-4}	1.6×10^{-6}
1B	83-32-9	ACENAPHTHENE	6	540.0000	5.7×10^{1}	4.8×10^{-4}	1.1×10^{-6}
78B	120-12-7	ANTHRACENE	6	201.5000	2.1×10^{1}	4.8×10^{-5}	1.1×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	7	788.0000	9.7×10^{1}	6.3×10^{-5}	1.5×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	3	715.3300	3.8×10^{1}	4.7×10^{-5}	1.1×10^{-7}
	207-08-9	BENZO(K)FLUORANTHENE	3	382.0000	2.0×10^{1}	1.9×10^{-5}	4.4×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	1	670.0000	1.2×10^{1}	4.8×10^{-6}	1.1×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	3	460.0000	2.4×10^{1}	2.1×10^{-5}	4.9×10^{-8}
76B	218-01-9	CHRYSENE	13	2276.8500	5.2×10^{2}	1.3×10^{-4}	3.0×10^{-7}
39B	206-44-0	FLUORANTHENE	23	829.1700	3.3×10^{2}	6.0×10^{-4}	1.4×10^{-6}
80B	86-73-7	FLUORENE	13	873.8500	2.0×10^{2}	8.6×10^{-4}	2.0×10^{-6}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	1	120.0000	2.1×10^{0}	1.9×10^{-6}	4.4×10^{-9}
55B	91-20-3	NAPHTHALENE	18	6665.5000	2.1×10^{3}	1.5×10^{-2}	3.0×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	24	7192.5000	3.0×10^{3}		
81B	85-01-8	PHENANTHRENE	27	1708.2600	8.1×10^{2}	1.8×10^{-3}	4.2×10^{-6}
84B	129-00-0	PYRENE	25	1019.8800	4.5×10^{2}	5.7×10^{-4}	1.3×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	13	1057.7700	2.4×10^{2}	4.5×10^{-3}	1.0×10^{-5}
26B	541-73-1	1,3-DICHLOROBENZENE	1	170.0000	3.0×10^{0}	2.6×10^{-4}	5.8×10^{-7}
27B	106-46-7	1,4-DICHLOROBENZENE	3	560.0000	2.9×10^{1}	9.8×10^{-4}	2.3×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	16	1135.3100	3.2×10^{2}	3.5×10^{-3}	8.1×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	6400.0000	1.2×10^{2}		
	100-01-6	4-NITROANILINE	1	630.0000	1.1×10^{1}	1.2×10^{-3}	7.8×10^{-6}
	65-85-0	BENZOIC ACID	5	8670.4000	7.4×10^{2}	3.9×10^{-2}	7.9×10^{-5}

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STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENTS 3:6 AND 3:14 ; AREAS = (100 x 100) ft^2

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (μg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	132-64-9	DIBENZOFURAN	1	1100.0000	1.9×10^{1}		
65A	108-95-2	PHENOL	2	1850.0000	6.5×10^{1}	2.4×10^{-2}	5.5×10^{-5}
	95-48-7	2-METHYLPHENOL	4	1808.0000	1.3×10^{2}	2.5×10^{-2}	5.8×10^{-5}
	106-44-5	4-METHYLPHENOL	6	2943.3300	3.1×10^{2}	4.1×10^{-2}	9.5×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	3	6956.6700	3.7×10^{2}	1.2×10^{-2}	2.8×10^{-5}
	95-95-4	2,4,5-TRICHLOROPHENOL	1	1400.0000	2.5×10^{1}	2.4×10^{-3}	5.5×10^{-6}
64A	87-86-5	PENTACHLOROPHENOL	4	10423.0000	7.3×10^{2}	4.6×10^{-3}	1.1×10^{-5}
100P	76-44-8	HEPTACHLOR	1	14.0000	2.5×10^{-1}		
97P	1031-07-8	ENDOSUFAN SULFATE	1	21.0000	3.7×10^{-1}	3.7×10^{-4}	8.5×10^{-7}
106P	53469-21-9	AROCLOR-1242	1	2500.0000	4.4×10^{1}	1.5×10^{-4}	3.5×10^{-7}
	12672-29	AROCLOR-1248	4	4080.0000	4.3×10^{2}	4.0×10^{-4}	9.2×10^{-7}
107P	11097-69-1	AROCLOR-1254	11	5137.2700	9.9×10^{2}	5.7×10^{-4}	1.3×10^{-6}
111P	11096-82-5	AROCLOR-1260	21	3592.3800	1.3×10^{3}	2.8×10^{-4}	6.5×10^{-7}

CAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENTS 3:8, 2:10, 3:11, 3:13, 4:8, 4:10, 4:12, 4:13, 2:11; AREAS = (100 x 50) ft²

NJ	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	4	5175.0000	3.6×10^{2}		
	78-93-3	2-BUTANONE	3	133.0000	7.0×10^{0}	8.6×10^{-3}	9.9×10^{-6}
	591-78-6	2-HEXANONE	5	52.2000	4.6×10^{0}	2.1×10^{-3}	3.1×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	8	172.5000	3.4×10^{1}	6.6×10^{-3}	7.6×10^{-6}
4V	71-43-2	BENZENE	10	489.5000	8.6×10^{1}	6.5×10^{-3}	7.5×10^{-6}
86V	108-88-3	TOLUENE	17	3963.7600	1.2×10^{3}	2.5×10^{-2}	2.9×10^{-5}
38V	100-41-4	ETHYLBENZENE	23	2567.4800	1.0×10^{3}	1.4×10^{-2}	1.6×10^{-5}
	95-47-6	TOTAL XYLENES	21	12767.0500	4.7×10^{3}	4.2×10^{-2}	4.9×10^{-5}
7V	108-90-7	CHLOROBENZENE	3	5.3300	2.8×10^{-1}	8.3×10^{-5}	9.6×10^{-8}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1.0000	1.8×10^{-2}	2.5×10^{-5}	2.9×10^{-8}
11V	71-55-6	1,1,1-TRICHLOROETHANE	6	52.6700	5.5×10^{0}	7.2×10^{-4}	8.3×10^{-7}
10V	75-34-3	1,1-DICHLOROETHANE	5	221.2000	1.9×10^{1}	3.6×10^{-3}	4.2×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	7	172.4500	2.1×10^{1}	4.5×10^{-3}	5.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	16	3264.3100	9.2×10^{2}	1.4×10^{-2}	1.6×10^{-5}
87V	79-01-6	TRICHLOROETHENE	15	46231.0700	1.2×10^{4}	1.6×10^{-1}	1.8×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	10	518.9000	9.1×10^{1}	4.5×10^{-3}	5.2×10^{-6}
29V	75-35-4	1,1-DICHLOROETHENE	2	3.0000	1.1×10^{-1}	4.1×10^{-5}	4.7×10^{-8}
88V	75-01-4	VINYL CHLORIDE	2	12.5000	4.4×10^{-1}	2.1×10^{-4}	2.4×10^{-7}
23V	67-66-3	CHLOROFORM	3	51.3300	2.7×10^{0}	1.1×10^{-3}	1.3×10^{-6}
44V	75-09-2	METHYLENE CHLORIDE	3	525.0000	2.8×10^{1}	7.5×10^{-3}	8.7×10^{-6}
32V	78-87-5	1,2-DICHLOROPROPANE	2	6.5000	2.3×10^{-1}	1.4×10^{-4}	1.6×10^{-7}
46V	74-83-9	BROMOMETHANE	1	2.0000	3.5×10^{-2}	2.5×10^{-5}	2.9×10^{-8}
	75-15-0	CARBON DISULFIDE	2	3.0000	1.1×10^{-1}	7.8×10^{-5}	9.0×10^{-8}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	19	9041.4200	3.0×10^{3}	3.2×10^{-3}	3.7×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	7	9242.4300	1.1×10^{3}	5.9×10^{-3}	6.8×10^{-6}
70B	84-66-2	DIETHYL PHTHALATE	3	1300.0000	6.8×10^{1}	4.3×10^{-3}	5.0×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	3	2150.0000	1.1×10^{2}	7.0×10^{-4}	8.1×10^{-7}
1B	83-32-9	ACENAPHTHENE	6	540.0000	5.7×10^{1}	4.8×10^{-4}	5.5×10^{-7}
78B	120-12-7	ANTHRACENE	6	201.5000	2.1×10^{1}	4.8×10^{-5}	5.5×10^{-8}
72B	56-55-3	BENZO(A)ANTHRACENE	7	788.0000	9.7×10^{1}	6.3×10^{-5}	7.3×10^{-8}
74B	205-99-2	BENZO(B)FLUORANTHENE	3	715.3300	3.8×10^{1}	4.7×10^{-5}	5.4×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	3	382.0000	2.0×10^{1}	1.9×10^{-5}	2.2×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	1	670.0000	1.2×10^{1}	4.8×10^{-6}	5.5×10^{-9}
73B	50-32-8	BENZO(A)PYRENE	3	460.0000	2.4×10^{1}	2.1×10^{-5}	2.4×10^{-8}
76B	218-01-9	CHRYSENE	13	2276.8500	5.2×10^{2}	1.3×10^{-4}	1.5×10^{-7}
39B	206-44-0	FLUORANTHENE	23	829.1700	3.3×10^{2}	6.0×10^{-4}	6.9×10^{-7}
80B	86-73-7	FLUORENE	13	873.8500	2.0×10^{2}	8.6×10^{-4}	9.9×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	1	120.0000	2.1×10^{0}	1.9×10^{-6}	2.2×10^{-9}
55B	91-20-3	NAPHTHALENE	18	6665.5000	2.1×10^{3}	1.3×10^{-2}	1.5×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	24	7192.5000	3.0×10^{3}		
81B	85-01-8	PHENANTHRENE	27	1708.2400	8.1×10^{2}	1.8×10^{-3}	2.1×10^{-6}
84B	129-00-0	PYRENE	25	1019.8800	4.5×10^{2}	5.7×10^{-4}	6.6×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	13	1037.7700	2.4×10^{2}	4.5×10^{-3}	5.2×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	1	170.0000	3.0×10^{0}	2.6×10^{-4}	2.9×10^{-7}
27B	106-46-7	1,4-DICHLOROBENZENE	3	560.0000	2.9×10^{1}	9.8×10^{-4}	1.1×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	16	1135.3100	3.2×10^{2}	3.5×10^{-3}	4.0×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	6600.0000	1.2×10^{2}		
	100-01-6	4-NITROANILINE	1	630.0000	1.1×10^{1}	1.2×10^{-3}	1.4×10^{-6}
	65-85-0	BENZOIC ACID	5	8670.6000	7.6×10^{2}	3.4×10^{-2}	3.9×10^{-5}

AR303107

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 01 GRID ELEMENTS 3:8, 3:10, 3:11, 3:13, 4:8, 4:10, 4:12, 4:13, 2:11; AREAS = ([illegible] x 50) ft²

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETRIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	132-64-9	DIBENZOFURAN	1	1100.0000	1.9×10^{1}		
65A	108-95-2	PHENOL	2	1850.0000	6.5×10^{1}	2.4×10^{-2}	2.8×10^{-5}
	95-48-7	2-METHYLPHENOL	4	1808.0000	1.3×10^{2}	2.5×10^{-2}	2.9×10^{-5}
	106-44-5	4-METHYLPHENOL	6	2943.3300	3.1×10^{2}	4.1×10^{-2}	4.7×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	3	6956.6700	3.7×10^{2}	1.2×10^{-2}	1.4×10^{-5}
	95-95-4	2,4,5-TRICHLOROPHENOL	1	1400.0000	2.5×10^{1}	2.4×10^{-3}	2.8×10^{-6}
64A	87-86-5	PENTACHLOROPHENOL	4	10423.0000	7.3×10^{2}	4.6×10^{-3}	5.3×10^{-6}
100P	76-44-8	HEPTACHLOR	1	14.0000	2.5×10^{-1}		
77P	1031-07-8	ENDOSUFAN SULFATE	1	21.0000	3.7×10^{-1}	3.7×10^{-4}	4.3×10^{-7}
106P	53469-21-9	AROCLOR-1242	1	2500.0000	4.4×10^{1}	1.5×10^{-4}	1.7×10^{-7}
	12672-29	AROCLOR-1248	6	4080.0000	4.3×10^{2}	4.0×10^{-4}	4.6×10^{-7}
107P	11097-69-1	AROCLOR-1254	11	5137.2700	9.9×10^{2}	5.7×10^{-4}	6.6×10^{-7}
111P	11096-82-5	AROCLOR-1260	21	3592.3800	1.3×10^{3}	2.8×10^{-4}	3.2×10^{-7}

STATE ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 05 GRID ELEMENTS 19:7,14,15; 17:16; 18:14,17; 20:7; 21:7; 22:7; AREA = (100 x 100) ft

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (ug/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	3	4000.0000	5.7×10^{2}		
	78-93-3	2-BUTANONE	2	8550.0000	8.1×10^{2}	2.1×10^{-1}	4.9×10^{-4}
	591-78-6	2-HEXANONE	1	280.0000	1.3×10^{1}	5.5×10^{-3}	1.3×10^{-5}
	108-10-1	4-METHYL-2-PENTANONE	1	200.0000	9.5×10^{0}	3.5×10^{-3}	8.1×10^{-6}
4V	71-43-2	BENZENE	1	70.0000	3.3×10^{0}	7.1×10^{-4}	1.6×10^{-6}
86V	108-88-3	TOLUENE	2	4310.0000	4.1×10^{2}	1.2×10^{-2}	2.8×10^{-5}
38V	100-41-4	ETHYLBENZENE	3	49.3300	7.0×10^{0}	4.8×10^{-4}	1.1×10^{-6}
	95-47-6	TOTAL XYLENES	7	1958.2300	6.5×10^{2}	1.1×10^{-2}	2.5×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	1	130.0000	6.2×10^{0}	7.8×10^{-4}	1.8×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	2	177.6000	1.7×10^{1}	3.9×10^{-3}	$9.0 \times 10^{[illegible]}$
16V	75-00-3	CHLOROETHANE	1	80.0000	3.8×10^{0}	1.2×10^{-3}	2.8×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	2	23.5000	2.2×10^{0}	2.4×10^{-4}	5.5×10^{-7}
87V	79-01-6	TRICHLOROETHENE	3	2337.3300	3.3×10^{2}	1.4×10^{-2}	3.2×10^{-5}
23V	67-66-3	CHLOROFORM	3	1068.0000	1.5×10^{2}	1.7×10^{-2}	3.9×10^{-5}
44V	75-09-2	METHYLENE CHLORIDE	4	695.7500	1.3×10^{2}	2.1×10^{-2}	4.9×10^{-5}
45V	74-87-3	CHLOROMETHANE	1	11.0000	5.2×10^{-1}	3.3×10^{-4}	7.6×10^{-7}
	75-15-0	CARBON DISULFIDE	1	5.0000	2.4×10^{-1}	1.3×10^{-4}	3.0×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	5	4454.0000	1.1×10^{3}	1.6×10^{-3}	3.7×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	2550.0000	2.4×10^{2}	2.1×10^{-3}	4.9×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	110.0000	5.2×10^{0}	9.4×10^{-5}	2.2×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	1	84.0000	4.0×10^{0}	7.3×10^{-6}	1.7×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	1	590.0000	2.8×10^{1}	8.6×10^{-6}	2.0×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	1	380.0000	1.8×10^{1}	1.7×10^{-5}	3.9×10^{-8}
76B	218-01-9	CHRYSENE	2	1196.0000	1.1×10^{2}	4.5×10^{-5}	1.0×10^{-7}
39B	206-44-0	FLUORANTHENE	5	134.0000	3.2×10^{1}	1.2×10^{-4}	2.8×10^{-7}
80B	86-73-7	FLUORENE	2	99.0000	9.4×10^{0}	1.1×10^{-4}	2.5×10^{-7}
55B	91-20-3	NAPHTHALENE	3	1316.6700	1.9×10^{2}	2.5×10^{-3}	5.8×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	2	2950.0000	2.8×10^{2}		
81B	85-01-8	PHENANTHRENE	5	256.6000	6.1×10^{1}	3.2×10^{-4}	7.4×10^{-7}
84B	129-00-0	PYRENE	10	545.0000	2.6×10^{2}	4.0×10^{-4}	9.2×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	3	174.3300	2.5×10^{1}	9.6×10^{-4}	2.2×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	4	234.2500	4.5×10^{1}	9.2×10^{-4}	2.1×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	85.0000	4.0×10^{0}		
18B	111-44-4	BIS(2-CHLOROETHYL)ETHER	1	88.0000	4.2×10^{0}	1.6×10^{-3}	3.7×10^{-6}
	65-85-0	BENZOIC ACID	1	37000.0000	1.8×10^{3}	6.1×10^{-2}	1.4×10^{-4}
65A	108-95-2	PHENOL	3	5652.3300	8.1×10^{2}	1.3×10^{1}	3.0×10^{-2}
	95-48-7	2-METHYLPHENOL	1	520.0000	2.5×10^{1}	8.2×10^{-3}	1.9×10^{-5}
	106-44-5	4-METHYLPHENOL	3	2749.6700	3.9×10^{2}	2.0×10^{-2}	4.6×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	1	1400.0000	6.7×10^{1}	3.6×10^{-3}	8.3×10^{-6}
21A	88-06-2	2,4,6-TRICHLOROPHENOL	1	5300.0000	2.5×10^{2}	1.0×10^{-2}	2.3×10^{-5}
59A	51-28-5	2,4-DINITROPHENOL	1	11000.0000	5.2×10^{2}	3.4×10^{-2}	7.9×10^{-5}
92P	50-29-3	4,4'-DDT	1	48.0000	2.3×10^{0}	4.9×10^{-6}	1.1×10^{-8}
	72-54-8	4,4'-DDD	1	59.0000	2.8×10^{0}	1.6×10^{-5}	3.7×10^{-8}
93P	72-55-9	4,4'-DDE	1	76.0000	3.6×10^{0}	1.4×10^{-5}	3.2×10^{-8}
104P	53469-2[illegible]	AROCLOR-1242	1	880.0000	4.2×10^{1}	1.4×10^{-4}	3.2×10^{-7}
	12672-2[illegible]	AROCLOR-1248	1	1800.0[illegible]	8.6×10^{1}	1.3×10^{-4}	3.0×10^{-7}
107P	11097-69-1	AROCLOR-1254	2	4100.00[illegible]	3.9×10^{2}	3.1×10^{-4}	7.2×10^{-7}
111P	11096-[illegible]	AROCLOR-1260	13	2015.6[illegible]	1.2×10^{3}	2.6×10^{-4}	6.0×10^{-7}

STATISTICAL [illegible] IS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 03

GRID E[illegible]NTS 18:8,9,10,11,12; 19:8,9,10,11; 20:10,11,12,13; 21:8,10; [illegible]8
AREA [illegible] x 50) ft²

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (ug/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	3	4000.0000	5.7×10^{2}		
	78-93-3	2-BUTANONE	2	8550.0000	8.1×10^{2}	2.1×10^{-1}	2.4×10^{-4}
	591-78-6	2-HEXANONE	1	280.0000	1.3×10^{1}	5.5×10^{-3}	6.4×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	1	200.0000	9.5×10^{0}	3.5×10^{-3}	4.0×10^{-6}
4V	71-43-2	BENZENE	1	70.0000	3.3×10^{0}	7.1×10^{-4}	8.2×10^{-7}
86V	108-88-3	TOLUENE	2	4310.0000	4.1×10^{2}	1.2×10^{-2}	1.4×10^{-5}
38V	100-41-4	ETHYLBENZENE	3	49.3300	7.0×10^{0}	4.8×10^{-4}	5.5×10^{-7}
	95-47-6	TOTAL XYLENES	7	1958.2300	6.5×10^{2}	1.1×10^{-2}	1.3×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	1	130.0000	6.2×10^{0}	7.8×10^{-4}	9.0×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	2	177.6000	1.7×10^{1}	3.9×10^{-3}	9.5×10^{-6}
16V	75-00-3	CHLOROETHANE	1	80.0000	3.8×10^{0}	1.2×10^{-3}	1.4×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	2	23.5000	2.2×10^{0}	2.4×10^{-4}	2.8×10^{-7}
87V	79-01-6	TRICHLOROETHENE	3	2337.3300	3.3×10^{2}	1.4×10^{-2}	1.6×10^{-5}
23V	67-66-3	CHLOROFORM	3	1068.0000	1.5×10^{2}	1.7×10^{-2}	2.0×10^{-5}
44V	75-09-2	METHYLENE CHLORIDE	4	695.7500	1.3×10^{2}	2.1×10^{-2}	2.4×10^{-5}
45V	74-87-3	CHLOROMETHANE	1	11.0000	5.2×10^{-1}	3.3×10^{-4}	3.8×10^{-7}
	75-15-0	CARBON DISULFIDE	1	5.0000	2.4×10^{-1}	1.3×10^{-4}	1.5×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	5	4454.0000	1.1×10^{3}	1.6×10^{-3}	1.8×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	2550.0000	2.4×10^{2}	2.1×10^{-3}	2.4×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	110.0000	5.2×10^{0}	9.4×10^{-5}	1.1×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	1	84.0000	4.0×10^{0}	7.3×10^{-6}	8.4×10^{-9}
79B	191-24-2	BENZO(G,H,I)PERYLENE	1	590.0000	2.8×10^{1}	8.6×10^{-6}	9.9×10^{-9}
73B	50-32-8	BENZO(A)PYRENE	1	380.0000	1.8×10^{1}	1.7×10^{-5}	2.0×10^{-8}
76B	218-01-9	CHRYSENE	2	1196.0000	1.1×10^{2}	4.5×10^{-5}	5.2×10^{-8}
39B	206-44-0	FLUORANTHENE	5	134.0000	3.2×10^{1}	1.2×10^{-4}	1.4×10^{-7}
80B	86-73-7	FLUORENE	2	99.0000	9.4×10^{0}	1.1×10^{-4}	1.3×10^{-7}
55B	91-20-3	NAPHTHALENE	3	1316.6700	1.9×10^{2}	2.5×10^{-3}	2.9×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	2	2950.0000	2.8×10^{2}		
81B	85-01-8	PHENANTHRENE	5	256.4000	6.1×10^{1}	3.2×10^{-4}	3.7×10^{-7}
84B	129-00-0	PYRENE	10	545.0000	2.6×10^{2}	4.0×10^{-4}	4.6×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	3	174.3300	2.5×10^{1}	9.6×10^{-4}	1.1×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	4	234.2500	4.5×10^{1}	9.2×10^{-4}	1.1×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	85.0000	4.0×10^{0}		
18B	111-44-4	BIS(2-CHLOROETHYL)ETHER	1	88.0000	4.2×10^{0}	1.6×10^{-3}	1.8×10^{-6}
	65-85-0	BENZOIC ACID	1	37000.0000	1.8×10^{3}	6.1×10^{-2}	7.0×10^{-5}
65A	108-95-2	PHENOL	3	5652.3300	8.1×10^{2}	1.3×10^{1}	1.5×10^{-2}
	95-48-7	2-METHYLPHENOL	1	520.0000	2.5×10^{1}	8.2×10^{-3}	9.5×10^{-6}
	106-44-5	4-METHYLPHENOL	3	2749.6700	3.9×10^{2}	2.0×10^{-2}	2.3×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	1	1400.0000	6.7×10^{1}	3.6×10^{-3}	4.2×10^{-6}
21A	88-06-2	2,4,6-TRICHLOROPHENOL	1	5300.0000	2.5×10^{2}	1.0×10^{-2}	1.2×10^{-5}
59A	51-28-5	2,4-DINITROPHENOL	1	11000.0000	5.2×10^{2}	3.4×10^{-2}	3.9×10^{-5}
92P	50-29-3	4,4'-DDT	1	48.0000	2.3×10^{0}	4.9×10^{-6}	5.7×10^{-9}
	72-54-8	4,4'-DDD	1	59.0000	2.8×10^{0}	1.6×10^{-5}	1.8×10^{-8}
93P	72-55-9	4,4'-DDE	1	76.0000	3.6×10^{0}	1.4×10^{-5}	1.6×10^{-8}
104P	53469-21-9	AROCLOR-1242	1	880.0000	4.2×10^{1}	1.4×10^{-4}	1.6×10^{-7}
	12672-29	AROCLOR-1248	1	1800.0000	8.6×10^{1}	1.3×10^{-4}	1.5×10^{-7}
107P	11097-69-1	AROCLOR-1254	2	4100.0000	3.9×10^{2}	3.1×10^{-4}	3.6×10^{-7}
111P	11096-82-5	AROCLOR-1260	13	2015.4200	1.2×10^{3}	2.6×10^{-4}	3.0×10^{-7}

ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 02 GRID ELEMENTS 6:8,9,10,11,12; 5:8,11; 7:10,11,12; AREAS = (69 x 50) ft^2

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PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (ug/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	8	2151.2500	7.5×10^{2}		
	78-93-3	2-BUTANONE	4	2584.0000	4.4×10^{2}	1.4×10^{-1}	1.1×10^{-4}
	591-78-6	2-HEXANONE	5	80.2000	1.7×10^{1}	6.6×10^{-3}	5.3×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	8	1060.2500	3.7×10^{2}	4.2×10^{-2}	3.3×10^{-5}
4V	71-43-2	BENZENE	10	166.9600	7.3×10^{1}	5.8×10^{-3}	4.6×10^{-6}
86V	108-88-3	TOLUENE	14	2736.7900	1.7×10^{3}	3.1×10^{-2}	2.5×10^{-5}
38V	100-41-4	ETHYLBENZENE	15	3220.7600	2.1×10^{3}	2.3×10^{-2}	1.8×10^{-5}
	95-47-6	TOTAL XYLENES	14	15666.5700	9.5×10^{3}	6.8×10^{-2}	5.4×10^{-5}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	18.0000	7.8×10^{-1}	3.2×10^{-4}	2.6×10^{-7}
11V	71-55-6	1,1,1-TRICHLOROETHANE	4	332.7500	5.8×10^{1}	3.6×10^{-3}	2.9×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	1	9.2000	4.0×10^{-1}	2.6×10^{-4}	2.1×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	4	55.7500	9.7×10^{0}	2.7×10^{-3}	2.2×10^{-6}
16V	75-00-3	CHLOROETHANE	4	73.0000	1.3×10^{1}	2.8×10^{-3}	2.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	11	608.4500	2.9×10^{2}	6.6×10^{-3}	5.3×10^{-6}
87V	79-01-6	TRICHLOROETHENE	11	1530.4500	7.3×10^{2}	2.3×10^{-2}	1.8×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	2	5.0000	4.3×10^{-1}	1.2×10^{-4}	9.6×10^{-8}
6V	56-23-5	CARBON TETRACHLORIDE	1	7.6000	3.3×10^{-1}	1.1×10^{-4}	8.8×10^{-8}
23V	67-66-3	CHLOROFORM	1	8.2000	3.6×10^{-1}	2.8×10^{-4}	2.2×10^{-7}
44V	75-09-2	METHYLENE CHLORIDE	1	1500.0000	6.5×10^{1}	1.3×10^{-2}	1.0×10^{-5}
32V	78-87-5	1,2-DICHLOROPROPANE	1	17.0000	7.4×10^{-1}	3.0×10^{-4}	2.4×10^{-7}
	75-15-0	CARBON DISULFIDE	2	3.6000	3.1×10^{-1}	1.6×10^{-4}	1.3×10^{-7}
		FLUOROTRICHLOROMETHANE	1	7.0000	3.0×10^{-1}	1.2×10^{-4}	9.6×10^{-8}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	5	4624.0000	1.0×10^{3}	1.5×10^{-3}	1.2×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	6200.0000	5.4×10^{2}	3.6×10^{-3}	2.9×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	73.0000	3.2×10^{0}	6.8×10^{-5}	5.4×10^{-8}
76B	218-01-9	CHRYSENE	4	1442.5000	2.5×10^{2}	7.8×10^{-5}	6.2×10^{-8}
39B	206-44-0	FLUORANTHENE	9	2251.8900	8.8×10^{2}	1.2×10^{-3}	9.6×10^{-7}
80B	86-73-7	FLUORENE	5	543.3300	7.1×10^{1}	4.3×10^{-4}	3.4×10^{-7}
55B	91-20-3	NAPHTHALENE	8	18431.2500	6.4×10^{3}	2.7×10^{-2}	2.2×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	9	20472.2200	8.0×10^{3}		
81B	85-01-8	PHENANTHRENE	8	3415.0000	1.2×10^{3}	2.4×10^{-3}	1.9×10^{-6}
84B	129-00-0	PYRENE	9	3320.0000	1.3×10^{3}	1.2×10^{-3}	9.6×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	4	3671.0000	6.4×10^{2}	8.7×10^{-3}	6.9×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	5	326.0000	7.1×10^{1}	1.2×10^{-3}	9.6×10^{-7}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	110.0000	4.8×10^{0}		
	100-51-6	BENZYL ALCOHOL	1	2700.0000	1.2×10^{2}	2.5×10^{-2}	2.0×10^{-5}
	132-64-9	DIBENZOFURAN	2	60280.0000	5.2×10^{3}		
12B	67-72-1	HEXACHLOROETHANE	2	5450.0000	4.7×10^{2}	5.4×10^{-3}	4.3×10^{-6}
65A	108-95-2	PHENOL	1	13000.0000	5.7×10^{2}	1.0×10^{-1}	8.0×10^{-5}
	95-48-7	2-METHYLPHENOL	1	5200.0000	2.3×10^{2}	3.7×10^{-2}	2.9×10^{-5}
	106-44-5	4-METHYLPHENOL	2	7550.0000	6.6×10^{2}	6.9×10^{-2}	5.5×10^{-5}
34A	105-67-9	2,4-DIMETHYLPHENOL	3	7696.6700	1.0×10^{3}	2.3×10^{-2}	1.8×10^{-5}
64A	87-86-5	PENTACHLOROPHENOL	1	420.0000	1.8×10^{1}	3.7×10^{-4}	2.9×10^{-7}
	12672-29	AROCLOR-1248	2	13400.0000	1.2×10^{3}	8.0×10^{-4}	6.4×10^{-7}
107P	11097-6[illegible]	AROCLOR-1254	4	6487.500	1.2×10^{3}	6.5×10^{-4}	5.2 x [illegible]
111P	11096-82-5	AROCLOR-1260	14	65235.7100	4.0×10^{4}	2.8×10^{-3}	2.2 x 1[illegible]

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 02 GRID ELEMENTS 5:6,7; 6:7; AREAS = (83 X 100) ft^2

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETRIC MEAN	REPRESENTATIVE CONC. (ug/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	8	2151.2500	7.5×10^{2}		
	78-93-3	2-BUTANONE	4	2584.0000	4.4×10^{2}	1.4×10^{-1}	2.7×10^{-4}
	591-78-6	2-HEXANONE	5	80.2000	1.7×10^{1}	6.6×10^{-3}	1.3×10^{-5}
	108-10-1	4-METHYL-2-PENTANONE	8	1060.2500	3.7×10^{2}	4.2×10^{-2}	8.1×10^{-5}
4V	71-43-2	BENZENE	10	166.9600	7.3×10^{1}	5.8×10^{-3}	1.1×10^{-5}
86V	108-88-3	TOLUENE	14	2736.7900	1.7×10^{2}	3.1×10^{-2}	5.9×10^{-5}
38V	100-41-4	ETHYLBENZENE	15	3220.7600	2.1×10^{3}	2.3×10^{-2}	4.4×10^{-5}
	95-47-6	TOTAL XYLENES	14	15666.5700	9.5×10^{3}	6.8×10^{-2}	1.3×10^{-4}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	18.0000	7.8×10^{-1}	3.2×10^{-4}	6.1×10^{-7}
11V	71-55-6	1,1,1-TRICHLOROETHANE	4	332.7500	5.8×10^{1}	3.6×10^{-3}	6.9×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	1	9.2000	4.0×10^{-1}	2.6×10^{-4}	5.0×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	4	55.7500	9.7×10^{0}	2.7×10^{-3}	5.2×10^{-6}
14V	75-00-3	CHLOROETHANE	4	73.0000	1.3×10^{1}	2.8×10^{-3}	5.4×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	11	608.4500	2.9×10^{2}	6.6×10^{-3}	1.3×10^{-5}
87V	79-01-6	TRICHLOROETHENE	11	1530.4500	7.3×10^{2}	2.3×10^{-2}	4.4×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	2	5.0000	4.3×10^{-1}	1.2×10^{-4}	2.3×10^{-7}
6V	56-23-5	CARBON TETRACHLORIDE	1	7.6000	3.3×10^{-1}	1.1×10^{-4}	2.1×10^{-7}
23V	67-66-3	CHLOROFORM	1	8.2000	3.6×10^{-1}	2.8×10^{-4}	5.4×10^{-7}
44V	75-09-2	METHYLENE CHLORIDE	1	1500.0000	6.5×10^{1}	1.3×10^{-2}	2.5×10^{-5}
32V	78-87-5	1,2-DICHLOROPROPANE	1	17.0000	7.4×10^{-1}	3.0×10^{-4}	5.8×10^{-7}
	75-15-0	CARBON DISULFIDE	2	3.6000	3.1×10^{-1}	1.6×10^{-4}	3.1×10^{-7}
		FLUOROTRICHLOROMETHANE	1	7.0000	3.0×10^{-1}	1.2×10^{-4}	2.3×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	5	4624.0000	1.0×10^{3}	1.5×10^{-3}	2.9×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	6200.0000	5.4×10^{2}	3.6×10^{-3}	6.9×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	73.0000	3.2×10^{0}	6.8×10^{-5}	1.3×10^{-7}
76B	218-01-9	CHRYSENE	4	1442.5000	2.5×10^{2}	7.8×10^{-5}	1.5×10^{-7}
39B	206-44-0	FLUORANTHENE	9	2251.8900	8.8×10^{2}	1.2×10^{-3}	2.3×10^{-6}
80B	86-73-7	FLUORENE	3	543.3300	7.1×10^{1}	4.3×10^{-4}	8.2×10^{-7}
55B	91-20-3	NAPHTHALENE	8	18431.2500	6.4×10^{3}	2.7×10^{-2}	5.2×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	9	20472.2200	8.0×10^{3}		
81B	85-01-8	PHENANTHRENE	8	3415.0000	1.2×10^{3}	2.4×10^{-3}	4.6×10^{-6}
84B	129-00-0	PYRENE	9	3320.0000	1.3×10^{3}	1.2×10^{-3}	2.3×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	4	3671.0000	6.4×10^{2}	8.7×10^{-3}	1.7×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	5	326.0000	7.1×10^{1}	1.2×10^{-3}	2.3×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	1	110.0000	4.8×10^{0}		
	100-51-6	BENZYL ALCOHOL	1	2700.0000	1.2×10^{2}	2.5×10^{-2}	4.8×10^{-5}
	132-64-9	DIBENZOFURAN	2	60280.0000	5.2×10^{3}		
12B	67-72-1	HEXACHLOROETHANE	2	5450.0000	4.7×10^{2}	5.4×10^{-3}	1.0×10^{-5}
65A	108-95-2	PHENOL	1	13000.0000	5.7×10^{2}	1.0×10^{-1}	1.9×10^{-4}
	95-48-7	2-METHYLPHENOL	1	5200.0000	2.3×10^{2}	3.7×10^{-2}	1.4×10^{-3}
	106-44-5	4-METHYLPHENOL	2	7550.0000	6.6×10^{2}	6.9×10^{-2}	2.7×10^{-3}
34A	105-67-9	2,4-DIMETHYLPHENOL	3	7696.6700	1.0×10^{3}	2.3×10^{-2}	9.0×10^{-4}
64A	87-86-5	PENTACHLOROPHENOL	1	420.0000	1.8×10^{1}	3.7×10^{-4}	1.4×10^{-5}
	12672-29	AROCLOR-1248	2	13400.0000	1.2×10^{3}	8.0×10^{-4}	3.1×10^{-5}
107P	11097-69-1	AROCLOR-1254	4	6487.5000	1.2×10^{3}	6.5×10^{-4}	2.5×10^{-5}
111P	11096-82-5	AROCLOR-1260	14	65233.7100	4.0×10^{4}	2.8×10^{-3}	1.1×10^{-4}

ST ...L ANALYSIS FOR SAMPLE TYPE: DOUGLASSVILLE TEST PIT SITE 04 GRID ELEMENT 20:5 ; AREA = $(100 \times 150)\ ft^2$

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETRIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	3	527.3300	7.2×10^{1}		
	78-93-3	2-BUTANONE	2	180.0000	1.6×10^{1}	1.5×10^{-2}	5.2×10^{-5}
	591-78-6	2-HEXANONE	4	112.2500	2.0×10^{1}	7.4×10^{-3}	2.6×10^{-5}
	108-10-1	4-METHYL-2-PENTANONE	5	71.4000	1.6×10^{1}	5.0×10^{-3}	1.7×10^{-5}
4V	71-43-2	BENZENE	5	1871.8600	4.3×10^{2}	1.9×10^{-2}	6.8×10^{-5}
86V	108-88-3	TOLUENE	13	7560.5400	4.5×10^{3}	6.1×10^{-2}	2.1×10^{-4}
38V	100-41-4	ETHYLBENZENE	12	3859.3300	2.1×10^{3}	2.3×10^{-2}	8.0×10^{-5}
	95-47-6	TOTAL XYLENES	13	8355.7700	4.9×10^{3}	4.4×10^{-2}	1.5×10^{-4}
7V	108-90-7	CHLOROBENZENE	2	2.0000	1.8×10^{-1}	6.1×10^{-5}	2.1×10^{-7}
11V	71-55-6	1,1,1-TRICHLOROETHANE	9	20.2100	8.3×10^{0}	9.5×10^{-4}	3.3×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	2	26.5000	2.4×10^{0}	8.8×10^{-4}	3.0×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	4	28.5000	5.2×10^{0}	1.8×10^{-3}	6.2×10^{-6}
16V	75-00-3	CHLOROETHANE	2	12.5000	1.1×10^{0}	5.3×10^{-4}	1.8×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	14	593.3900	3.8×10^{2}	7.9×10^{-3}	2.7×10^{-5}
87V	79-01-6	TRICHLOROETHENE	10	6857.7000	3.1×10^{3}	6.2×10^{-2}	2.1×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	2	47.5000	4.3×10^{0}	5.1×10^{-4}	2.0×10^{-6}
6V	56-23-5	CARBON TETRACHLORIDE	1	6.6000	3.0×10^{-1}	1.0×10^{-4}	3.5×10^{-7}
44V	75-09-2	METHYLENE CHLORIDE	3	7653.3300	1.0×10^{3}	8.5×10^{-2}	2.9×10^{-4}
32V	78-87-5	1,2-DICHLOROPROPANE	1	21.0000	9.5×10^{-1}	3.6×10^{-4}	1.2×10^{-6}
		FLUOROTRICHLOROMETHANE	1	5.8000	2.6×10^{-1}	1.1×10^{-4}	3.8×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	3	1116.6700	1.5×10^{2}	4.1×10^{-4}	1.4×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	2190.0000	2.0×10^{2}	1.8×10^{-3}	6.2×10^{-6}
70B	84-66-2	DIETHYL PHTHALATE	1	120.0000	5.5×10^{0}	7.8×10^{-4}	2.7×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	170.0000	7.7×10^{0}	1.2×10^{-4}	4.1×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	5	6466.6000	1.5×10^{3}	4.0×10^{-4}	1.4×10^{-6}
74B	205-99-2	BENZO(B)FLUORANTHENE	4	23341.0000	4.2×10^{3}	1.1×10^{-3}	3.8×10^{-6}
	207-08-9	BENZO(K)FLUORANTHENE	4	23341.0000	4.2×10^{3}	7.3×10^{-4}	2.5×10^{-6}
79B	191-24-2	BENZO(G,H,I)PERYLENE	2	22500.0000	2.0×10^{3}	1.6×10^{-4}	5.5×10^{-7}
73B	50-32-8	BENZO(A)PYRENE	4	9760.0000	1.8×10^{3}	3.9×10^{-4}	1.4×10^{-6}
76B	218-01-9	CHRYSENE	8	7450.3800	2.7×10^{3}	3.9×10^{-4}	1.4×10^{-6}
82B	53-70-3	DIBENZO(A,H)ANTHRACENE	2	6000.0000	5.5×10^{2}	8.5×10^{-5}	2.9×10^{-7}
39B	206-44-0	FLUORANTHENE	10	4322.4000	2.0×10^{3}	2.0×10^{-3}	6.9×10^{-6}
80B	86-73-7	FLUORENE	3	386.6700	5.3×10^{1}	3.5×10^{-4}	1.2×10^{-6}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	2	13500.0000	1.2×10^{3}	1.4×10^{-4}	4.9×10^{-7}
55B	91-20-3	NAPHTHALENE	6	5645.0000	1.5×10^{3}	1.0×10^{-2}	3.5×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	7	9342.8600	3.0×10^{3}		
81B	85-01-8	PHENANTHRENE	8	6887.5000	2.5×10^{3}	3.9×10^{-3}	1.4×10^{-5}
84B	129-00-0	PYRENE	13	7674.8600	4.5×10^{3}	2.1×10^{-3}	9.4×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	5	880.0000	2.0×10^{2}	3.9×10^{-3}	1.4×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	5	1040.8000	2.4×10^{2}	2.9×10^{-3}	1.0×10^{-5}
	65-85-0	BENZOIC ACID	2	8700.0000	7.9×10^{2}	3.5×10^{-2}	1.2×10^{-4}
65A	108-95-2	PHENOL	3	25933.3300	3.5×10^{3}	3.5×10^{-1}	1.2×10^{-3}
	9[illegible]-7	2-METHYLPHENOL	1	320.0000	1.5×10^{1}	5.8×10^{-3}	2.0×10^{-5}
	[illegible]-5	4-METHYLPHENOL	4	37.5000	9.5×10^{2}	8.8×10^{-2}	3.0×10^{-4}
34A	10[illegible]-67-9	2,4-DIMETHYLPHENOL	5	2300.0000	1.2×10^{3}	2.6×10^{-2}	9.0×10^{-5}
101P	[illegible]-69-1	AROCLOR-1254	7	441.4300	1.7×10^{3}	8.3×10^{-4}	2.9×10^{-6}
				[illegible]	5.8×10^{3}	7.6×10^{-4}	2.6×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASSVILLE TEST PIT SITE 04 GRID ELEMENT 20:6; AREA = (100×100) ft^2

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	3	527.3300	7.2×10^{1}		
	78-93-3	2-BUTANONE	2	180.0000	1.6×10^{1}	1.5×10^{-2}	3.5×10^{-5}
	591-78-6	2-HEXANONE	4	112.2500	2.0×10^{1}	7.4×10^{-3}	1.7×10^{-5}
	108-10-1	4-METHYL-2-PENTANONE	5	71.4000	1.6×10^{1}	5.0×10^{-3}	1.2×10^{-5}
4V	71-43-2	BENZENE	5	1871.8600	4.3×10^{2}	1.9×10^{-2}	4.4×10^{-5}
86V	108-88-3	TOLUENE	13	7560.5400	4.5×10^{3}	6.1×10^{-2}	1.4×10^{-4}
38V	100-41-4	ETHYLBENZENE	12	3859.3300	2.1×10^{3}	2.3×10^{-2}	5.3×10^{-5}
	95-47-6	TOTAL XYLENES	13	8355.7700	4.9×10^{3}	4.4×10^{-2}	1.0×10^{-4}
7V	108-90-7	CHLOROBENZENE	2	2.0000	1.8×10^{-1}	6.1×10^{-5}	1.4×10^{-7}
11V	71-55-6	1,1,1-TRICHLOROETHANE	9	20.2100	8.3×10^{0}	9.5×10^{-4}	2.2×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	2	26.5000	2.4×10^{0}	8.8×10^{-4}	2.0×10^{-6}
10V	107-06-2	1,2-DICHLOROETHANE	4	28.5000	5.2×10^{0}	1.8×10^{-3}	4.2×10^{-6}
16V	75-00-3	CHLOROETHANE	2	12.5000	1.1×10^{0}	5.3×10^{-4}	1.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	14	593.3900	3.8×10^{2}	7.9×10^{-3}	1.8×10^{-5}
87V	79-01-6	TRICHLOROETHENE	10	6857.7000	3.1×10^{3}	6.2×10^{-2}	1.4×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	2	47.5000	4.3×10^{0}	5.7×10^{-4}	1.3×10^{-6}
6V	56-23-5	CARBON TETRACHLORIDE	1	6.6000	3.0×10^{-1}	1.0×10^{-4}	2.3×10^{-7}
44V	75-09-2	METHYLENE CHLORIDE	3	7653.3300	1.0×10^{3}	8.5×10^{-2}	2.0×10^{-4}
32V	78-87-5	1,2-DICHLOROPROPANE	1	21.0000	9.5×10^{-1}	3.6×10^{-4}	8.3×10^{-7}
		FLUOROTRICHLOROMETHANE	1	5.8000	2.6×10^{-1}	1.1×10^{-4}	2.5×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	3	1116.6700	1.5×10^{2}	4.1×10^{-4}	9.8×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	2	2190.0000	2.0×10^{2}	1.8×10^{-3}	4.2×10^{-6}
70B	84-66-2	DIETHYL PHTHALATE	1	120.0000	5.5×10^{0}	7.8×10^{-4}	1.8×10^{-6}
1B	83-32-9	ACENAPHTHENE	1	170.0000	7.7×10^{0}	1.2×10^{-4}	2.8×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	5	6466.6000	1.5×10^{3}	4.0×10^{-4}	9.2×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	4	23341.0000	4.2×10^{3}	1.1×10^{-3}	2.5×10^{-6}
[illegible]	207-08-9	BENZO(K)FLUORANTHENE	4	23341.0000	4.2×10^{3}	7.3×10^{-4}	1.7×10^{-6}
79B	191-24-2	BENZO(G,H,I)PERYLENE	2	22500.0000	2.0×10^{3}	1.6×10^{-4}	3.7×10^{-7}
73B	50-32-8	BENZO(A)PYRENE	4	9760.0000	1.8×10^{3}	3.9×10^{-4}	9.0×10^{-7}
76B	218-01-9	CHRYSENE	8	7450.3800	2.7×10^{3}	3.9×10^{-4}	9.0×10^{-7}
82B	53-70-3	DIBENZO(A,H)ANTHRACENE	2	6000.0000	5.5×10^{2}	8.5×10^{-5}	2.0×10^{-7}
39B	206-44-0	FLUORANTHENE	10	4322.4000	2.0×10^{3}	2.0×10^{-3}	4.6×10^{-6}
80B	86-73-7	FLUORENE	3	386.6700	5.3×10^{1}	3.5×10^{-4}	8.1×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	2	13500.0000	1.2×10^{3}	1.4×10^{-4}	3.2×10^{-7}
55B	91-20-3	NAPHTHALENE	6	5645.0000	1.5×10^{3}	1.0×10^{-2}	2.3×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	7	9342.8600	3.0×10^{3}		
81B	85-01-8	PHENANTHRENE	8	6887.5000	2.5×10^{3}	3.9×10^{-3}	9.0×10^{-6}
84B	129-00-0	PYRENE	13	7674.8500	4.5×10^{3}	2.7×10^{-3}	6.2×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	5	880.0000	2.0×10^{2}	3.9×10^{-3}	9.0×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	5	1040.8000	2.4×10^{2}	2.9×10^{-3}	6.7×10^{-6}
	65-85-0	BENZOIC ACID	2	8700.0000	7.9×10^{2}	3.5×10^{-2}	8.1×10^{-5}
65A	108-95-2	PHENOL	3	25933.3300	3.5×10^{3}	3.5×10^{-1}	8.1×10^{-4}
	95-48-7	2-METHYLPHENOL	1	320.0000	1.5×10^{1}	5.8×10^{-3}	1.3×10^{-5}
	106-44-5	4-METHYLPHENOL	4	5237.5000	9.5×10^{2}	8.8×10^{-2}	2.0×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	5	5300.0000	1.2×10^{3}	2.6×10^{-2}	6.0×10^{-5}
107P	11097-69-1	AROCLOR-1254	7	5441.4300	1.7×10^{3}	8.3×10^{-4}	1.9×10^{-6}
111P	11096-82-5	AROCLOR-1260	10	12823.0000	5.8×10^{3}	7.6×10^{-4}	1.8×10^{-6}

STATI ALYSIS FOR SAMPLE TYPE: TEST PIT 12 GRID ELEMENT 4:9; AREA = (100 x 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	17.5	3200.0000		
	108-10-1	4-METHYL-2-PENTANONE	17.5	34.2860	8.5×10^{-3}	9.8×10^{-6}
4V	71-43-2	BENZENE	17.5	598.9710	2.4×10^{-2}	2.8×10^{-5}
86V	108-88-3	TOLUENE	17.5	1305.8290	2.6×10^{-2}	3.0×10^{-5}
38V	100-41-4	ETHYLBENZENE	17.5	731.8570	1.1×10^{-2}	1.3×10^{-5}
	95-47-6	TOTAL XYLENES	17.5	2930.0000	3.1×10^{-2}	3.6×10^{-5}
11V	71-55-6	1,1,1-TRICHLOROETHANE	17.5	43.4290	2.9×10^{-3}	3.3×10^{-6}
10V	75-34-3	1,1-DICHLOROETHANE	17.5	228.5710	1.9×10^{-2}	2.2×10^{-5}
10V	107-06-2	1,2-DICHLOROETHANE	17.5	61.4290	9.4×10^{-3}	1.1×10^{-5}
85V	127-18-4	TETRACHLOROETHENE	17.5	224.4860	5.5×10^{-3}	6.4×10^{-6}
87V	79-01-6	TRICHLOROETHENE	17.5	2525.4290	5.4×10^{-2}	6.2×10^{-5}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	17.5	252.0000	9.0×10^{-3}	1.0×10^{-5}
23V	67-66-3	CHLOROFORM	17.5	34.2860	6.2×10^{-3}	7.2×10^{-6}
44V	75-09-2	METHYLENE CHLORIDE	17.5	217.1430	3.0×10^{-2}	3.5×10^{-5}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	985.7140	1.5×10^{-3}	1.7×10^{-6}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	845.7140	2.7×10^{-4}	3.1×10^{-7}
76B	218-01-9	CHRYSENE	17.5	1462.8570	2.6×10^{-4}	3.0×10^{-7}
39B	206-44-0	FLUORANTHENE	17.5	731.4290	1.0×10^{-3}	1.2×10^{-6}
55B	91-20-3	NAPHTHALENE	17.5	3714.2860	1.9×10^{-2}	2.2×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	17.5	6634.2860		
81B	85-01-8	PHENANTHRENE	17.5	1524.0000	2.8×10^{-3}	3.2×10^{-6}
84B	129-00-0	PYRENE	17.5	731.4290	8.0×10^{-4}	9.2×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	17.5	28.0000	1.0×10^{-3}	1.2×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	504.2860	4.7×10^{-3}	5.4×10^{-6}
62B	86-30-6	N-NITROSODIPHENYLAMINE	17.5	1885.7140		
	95-48-7	2-METHYLPHENOL	17.5	457.1430	5.9×10^{-2}	6.8×10^{-5}
	106-44-5	4-METHYLPHENOL	17.5	428.5710	5.1×10^{-2}	5.9×10^{-5}
	12672-29	AROCLOR-1248	17.5	751.4290	5.9×10^{-4}	6.8×10^{-7}
[illegible]	11096-82-5	AROCLOR-1260	17.5	1686.2860	3.3×10^{-4}	3.8×10^{-7}

STATISTICAL (IS FOR SAMPLE TYPE: TEST PIT 01 GRID ELEMENTS 7:15 & 8:15; AREAS = (58 x 100) & (48 x 100) ft^2 (

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (7:15) (lbs/day)	LOADING (8:15) (lbs/day)
	108-10-1	4-METHYL-2-PENTANONE	12.5	4.4000	2.1×10^{-3}	2.8×10^{-6}	2.3×10^{-6}
86V	108-88-3	TOLUENE	12.5	49.5200	2.9×10^{-3}	3.9×10^{-6}	3.2×10^{-6}
38V	100-41-4	ETHYLBENZENE	12.5	42.0800	1.6×10^{-3}	2.1×10^{-6}	1.8×10^{-6}
	95-47-6	TOTAL XYLENES	12.5	180.8000	4.7×10^{-3}	6.3×10^{-6}	5.2×10^{-6}
7V	108-90-7	CHLOROBENZENE	12.5	3.6000	4.7×10^{-4}	6.3×10^{-7}	5.2×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	12.5	2.0000	2.3×10^{-4}	3.1×10^{-7}	2.6×10^{-7}
87V	79-01-6	TRICHL[redacted]	12.5	4.1600	6.9×10^{-4}	9.2×10^{-7}	7.7×10^{-7}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	12.5	6.3200	7.4×10^{-3}	9.9×10^{-6}	8.2×10^{-6}
66B	117-81-7	[redacted])PHTHALATE	12.5	1367.2000	1.9×10^{-3}	2.5×10^{-6}	2.1×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	12.5	792.0000	4.7×10^{-3}	6.3×10^{-6}	5.2×10^{-6}
76B	218-01-9	CHRYSENE	12.5	29.6000	1.8×10^{-5}	2.4×10^{-8}	2.0×10^{-8}
39B	206-44-0	FLUORANTHENE	12.5	21.7600	9.5×10^{-5}	1.3×10^{-7}	1.1×10^{-7}
80B	86-73-7	FLUORENE	12.5	31.6800	2.5×10^{-4}	3.3×10^{-7}	2.8×10^{-8}
55B	91-20-3	NAPHTHALENE	12.5	416.0000	4.2×10^{-3}	5.6×10^{-6}	4.7×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	12.5	1640.0000			
81B	85-01-8	PHENANTHRENE	12.5	194.4000	6.9×10^{-4}	9.2×10^{-7}	7.7×10^{-7}
84B	129-00-0	PYRENE	12.5	179.2000	3.1×10^{-4}	4.2×10^{-7}	3.4×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	12.5	139.2000	3.1×10^{-3}	4.2×10^{-6}	3.4×10^{-6}
58A	100-02-7	4-NITROPHENOL	12.5	440.0000	4.5×10^{-2}	6.0×10^{-5}	5.0×10^{-5}
107P	11097-69-1	AROCLOR-1254	12.5	546.0000	3.8×10^{-4}	5.1×10^{-7}	4.2×10^{-7}
111P	11096-82-5	[redacted]	12.5	956.0000	2.3×10^{-4}	3.1×10^{-7}	2.6×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 02 GRID ELEMENT 8:17; AREA = (48 x 100) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
38V	100-41-4	ETHYLBENZENE	12.5	30.8000	1.3×10^{-3}	1.4×10^{-6}
	95-47-6	TOTAL XYLENES	12.5	28.0000	1.3×10^{-3}	1.4×10^{-6}
7V	108-90-7	CHLOROBENZENE	12.5	10.8000	9.9×10^{-4}	1.1×10^{-6}
1B	83-32-9	ACENAPHTHENE	12.5	80.0000	6.0×10^{-4}	6.7×10^{-7}
78B	120-12-7	ANTHRACENE	12.5	60.0000	9.9×10^{-5}	1.1×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	12.5	11.2000	1.5×10^{-5}	1.7×10^{-8}
76B	218-01-9	CHRYSENE	12.5	51.2000	2.7×10^{-5}	3.0×10^{-8}
39B	206-44-0	FLUORANTHENE	12.5	80.0000	2.3×10^{-4}	2.6×10^{-7}
80B	86-73-7	FLUORENE	12.5	216.0000	9.1×10^{-4}	1.0×10^{-6}
55B	91-20-3	NAPHTHALENE	12.5	3.5200	1.7×10^{-4}	1.9×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	12.5	2603.4400		
81B	85-01-8	PHENANTHRENE	12.5	640.0000	1.6×10^{-3}	1.8×10^{-6}
84B	129-00-0	PYRENE	12.5	85.6000	1.9×10^{-4}	2.1×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	12.5	64.0000	1.8×10^{-3}	2.0×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	12.5	48.0000	1.6×10^{-3}	1.8×10^{-6}
27B	106-46-7	1,4-DICHLOROBENZENE	12.5	208.0000	3.7×10^{-3}	4.1×10^{-6}
	106-44-5	4-METHYLPHENOL	12.5	5.8400	2.8×10^{-3}	3.1×10^{-6}
34A	105-67-9	2,4-DIMETHYLPHENOL	12.5	6.5600	7.5×10^{-4}	8.3×10^{-7}
111P	11096-82-5	AROCLOR-1260	12.5	1121.6000	2.5×10^{-4}	2.8×10^{-7}

STATISTICAL [illegible]IS FOR SAMPLE TYPE: TEST PIT 03 GRID ELEMENT 17:17; A[illegible] = $(100 \times 100)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	591-78-6	2-HEXANONE	22.5	1.3330	1.2×10^{-3}	2.8×10^{-6}
38V	100-41-4	ETHYLBENZENE	22.5	0.4440	7.3×10^{-5}	1.7×10^{-7}
	95-47-6	TOTAL XYLENES	22.5	2.8890	2.8×10^{-4}	6.5×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	22.5	0.2220	5.1×10^{-5}	1.2×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	66.8890	2.4×10^{-4}	5.5×10^{-7}
55B	91-20-3	NAPHTHALENE	22.5	28.8890	6.9×10^{-4}	1.6×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	22.5	53.3330		
81B	85-01-8	PHENANTHRENE	22.5	13.5560	1.1×10^{-4}	2.5×10^{-7}
	65-85-0	BENZOIC ACID	22.5	106.6670	9.1×10^{-3}	2.1×10^{-5}
65A	108-95-2	PHENOL	22.5	144.4440	4.1×10^{-2}	9.5×10^{-5}
	95-48-7	2-METHYLPHENOL	22.5	104.4440	2.2×10^{-2}	5.1×10^{-5}
	106-44-5	4-METHYLPHENOL	22.5	1078.4440	1.0×10^{1}	2.3×10^{-2}
34A	105-67-9	2,4-DIMETHYLPHENOL	22.5	202.2220	8.3×10^{-1}	1.9×10^{-3}
103P	319-85-7	BETA-BHC	22.5	4.0000	2.9×10^{-5}	6.7×10^{-8}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 04 GRID ELEMENT 2:12; AREA = $(100 \times 50)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	16.4000	9.2×10^{-5}	1.1×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	22.8570	4.2×10^{-4}	4.9×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	3.7710	9.8×10^{-6}	1.1×10^{-8}
[illegible]	207-08-9	BENZO(K)FLUORANTHENE	17.5	3.7710	6.3×10^{-6}	7.3×10^{-9}
76B	218-01-9	CHRYSENE	17.5	2.5710	3.5×10^{-6}	4.0×10^{-9}
39B	206-44-0	FLUORANTHENE	17.5	4.1710	3.1×10^{-5}	3.6×10^{-8}
84B	129-00-0	PYRENE	17.5	2.8570	1.9×10^{-5}	2.2×10^{-8}
64A	87-86-5	[illegible]CHLOROPHENOL	17.5	26.2860	4.8×10^{-4}	5.5×10^{-7}

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STAT. ..ALYSIS FOR SAMPLE TYPE: TEST PIT 05 GRID ELEMENT 2:13; AREA = (100 × 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)	LOADING (lbs/day)
	78-93-3	2-BUTANONE	12.5	3.8000	5.7×10^{-3}	6.6×10^{-6}
86V	108-88-3	TOLUENE	12.5	9.0400	9.0×10^{-4}	1.0×10^{-6}
38V	100-41-4	ETHYLBENZENE	12.5	54.0000	1.9×10^{-3}	2.2×10^{-6}
	95-47-6	TOTAL XYLENES	12.5	146.2400	4.0×10^{-3}	4.6×10^{-6}
7V	108-90-7	CHLOROBENZENE	12.5	0.8000	1.7×10^{-4}	2.0×10^{-7}
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	12.5	0.4000	2.1×10^{-4}	2.4×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	12.5	181.6000	1.7×10^{-3}	2.0×10^{-6}
70B	84-66-2	DIETHYL PHTHALATE	12.5	132.0000	6.7×10^{-3}	7.7×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	12.5	10.0000	1.4×10^{-4}	1.6×10^{-7}
1B	83-32-9	ACENAPHTHENE	12.5	440.0000	1.9×10^{-3}	2.2×10^{-6}
78B	120-12-7	ANTHRACENE	12.5	54.4000	4.4×10^{-4}	5.1×10^{-7}
76B	218-01-9	CHRYSENE	12.5	20.0000	1.4×10^{-5}	1.6×10^{-8}
39B	206-44-0	FLUORANTHENE	12.5	143.4000	3.4×10^{-4}	3.9×10^{-7}
80B	86-73-7	FLUORENE	12.5	1196.0000	2.9×10^{-3}	3.3×10^{-6}
55B	91-20-3	NAPHTHALENE	12.5	3643.1200	1.8×10^{-2}	2.1×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	12.5	12779.2000		
81B	85-01-8	PHENANTHRENE	12.5	2019.2000	3.4×10^{-3}	3.9×10^{-6}
84B	129-00-0	PYRENE	12.5	298.8000	4.3×10^{-4}	5.0×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	12.5	199.6000	3.9×10^{-3}	4.5×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	12.5	986.4000	7.4×10^{-3}	8.5×10^{-6}
	65-85-0	BENZOIC ACID	12.5	65.6000	6.5×10^{-3}	7.5×10^{-6}
	132-64-9	DIBENZOFURAN	12.5	220.0000		
65A	108-95-2	PHENOL	12.5	24.0000	1.2×10^{-2}	1.4×10^{-5}
	95-48-7	2-METHYLPHENOL	12.5	5.7600	7.9×10^{-3}	9.1×10^{-6}
	106-44-5	4-METHYLPHENOL	12.5	18.4000	6.0×10^{-3}	6.9×10^{-6}
34A	105-67-9	2,4-DIMETHYLPHENOL	12.5	21.6000	1.7×10^{-3}	2.0×10^{-6}
	12672-29	AROCLOR-1248	12.5	4400.0000	1.9×10^{-3}	2.2×10^{-6}
107P	11097-69-1	AROCLOR-1254	12.5	1280.0000	6.8×10^{-4}	7.9×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 06 GRID ELEMENTS 18:15 AND 18:16; AREAS = $(100 \times 100)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
15V	79-34-5	1,1,2,2-TETRACHLOROETHANE	22.5	0.2220	1.4×10^{-4}	3.2×10^{-7}
80B	86-73-7	FLUORENE	22.5	33.3330	2.6×10^{-4}	6.0×10^{-7}
81B	85-01-8	PHENANTHRENE	22.5	93.3330	4.2×10^{-4}	9.7×10^{-7}
84B	129-00-0	PYRENE	22.5	13.3330	5.3×10^{-5}	1.2×10^{-7}
62B	86-30-6	N-NITROSODIPHENYLAMINE	22.5	15.1110		
	132-64-9	DIBENZOFURAN	22.5	10.4440		
106P	53469-21-9	AROCLOR-1242	22.5	689.7780	9.5×10^{-4}	2.2×10^{-6}
111P	11096-82-5	AROCLOR-1260	22.5	500.4440	1.5×10^{-4}	3.5×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 07 GRID ELEMENT 2:10; AREA = $(100 \times 50)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	67.4290	2.4×10^{-4}	2.8×10^{-7}
84B	129-00-0	PYRENE	17.5	2.4570	1.7×10^{-5}	2.0×10^{-8}
111P	11096-82-5	AROCLOR-1260	17.5	258.2860	9.3×10^{-5}	1.1×10^{-7}

STA ANALYSIS FOR SAMPLE TYPE: TEST PIT 08 GRID ELEMENT 3:12 ; AREA = $(100 \times 50)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)	LOADING (lbs/day)
85V	127-18-4	TETRACHLOROETHENE	12.5	0.3200	6.5×10^{-5}	7.5×10^{-8}
87V	79-01-6	TRICHLOROETHENE	12.5	0.0800	4.8×10^{-5}	5.5×10^{-8}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	12.5	96.0000	3.1×10^{-4}	3.6×10^{-7}
78B	120-12-7	ANTHRACENE	12.5	27.2000	5.8×10^{-5}	6.7×10^{-8}
39B	206-44-0	FLUORANTHENE	12.5	22.4000	9.7×10^{-5}	1.1×10^{-7}
55B	91-20-3	NAPHTHALENE	12.5	6.6400	2.6×10^{-4}	3.0×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	12.5	12.0000		
81B	85-01-8	PHENANTHRENE	12.5	13.6000	1.1×10^{-4}	1.3×10^{-7}
84B	129-00-0	PYRENE	12.5	74.4000	1.7×10^{-4}	2.0×10^{-7}
	106-44-5	4-METHYLPHENOL	12.5	10.4000	4.1×10^{-3}	4.7×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 09 GRID ELEMENTS 4:14 AND 5:14; AREAS = $(100 \times 100)\ ft^2$; $(83 \times 100)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)	LOADING (4:14) (lbs/day)	LOADING (5:14) (lbs/day)
72B	56-55-3	BENZO(A)ANTHRACENE	7.5	6.8000	1.0×10^{-5}	2.3×10^{-8}	1.9×10^{-8}
74B	205-99-2	BENZO(B)FLUORANTHENE	7.5	10.5330	1.9×10^{-5}	4.4×10^{-8}	3.6×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	7.5	10.5330	1.3×10^{-5}	3.0×10^{-8}	2.5×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	7.5	7.8670	3.6×10^{-6}	8.3×10^{-9}	6.9×10^{-9}
73B	50-32-8	BENZO(A)PYRENE	7.5	7.8670	9.9×10^{-6}	2.3×10^{-8}	1.9×10^{-8}
76B	218-01-9	CHRYSENE	7.5	8.9330	8.2×10^{-6}	1.9×10^{-8}	1.6×10^{-8}
39B	206-44-0	FLUORANTHENE	7.5	9.0670	5.3×10^{-5}	1.2×10^{-7}	1.0×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	7.5	6.2670	4.1×10^{-6}	9.5×10^{-9}	7.9×10^{-9}
84B	129-00-0	PYRENE	7.5	7.3330	3.5×10^{-5}	8.1×10^{-8}	6.7×10^{-8}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	7.5	12.4000	3.8×10^{-4}	8.8×10^{-7}	7.3×10^{-7}
	65-85-0	BENZOIC ACID	7.5	7.8670	1.5×10^{-3}	3.5×10^{-6}	2.9×10^{-6}
111P	11096-2	AROCLOR-1260	7.5	16533.3330	1.6×10^{-3}	3.7×10^{-6}	3.1×10^{-6}

STATISTICAL A[illegible]SIS FOR SAMPLE TYPE: TEST PIT 11 GRID ELEMENTS 2:9 AND [illegible]; AREAS = $(100 \times 50)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	42.8570	1.8×10^{-4}	2.1×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	3.9430	7.2×10^{-6}	8.3×10^{-9}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	10.2860	1.9×10^{-5}	2.2×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	17.5	10.2860	1.2×10^{-5}	1.4×10^{-8}
79B	191-24-2	BENZO(G,H,I)PERYLENE	17.5	38.2860	1.1×10^{-5}	1.3×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	17.5	9.1430	1.1×10^{-5}	1.3×10^{-8}
76B	218-01-9	CHRYSENE	17.5	5.7140	6.0×10^{-6}	6.9×10^{-9}
39B	206-44-0	FLUORANTHENE	17.5	21.8860	9.6×10^{-5}	1.1×10^{-7}
80B	86-73-7	FLUORENE	17.5	20.2860	1.8×10^{-4}	2.1×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	17.5	6.8570	4.3×10^{-6}	5.0×10^{-9}
55B	91-20-3	NAPHTHALENE	17.5	13.4290	4.1×10^{-4}	4.7×10^{-7}
81B	85-01-8	PHENANTHRENE	17.5	28.1710	1.9×10^{-4}	2.2×10^{-7}
84B	129-00-0	PYRENE	17.5	26.0000	8.3×10^{-5}	9.6×10^{-8}
	95-50-1	1,2-DICHLOROBENZENE	17.5	18.0000	7.7×10^{-4}	8.9×10^{-7}
	65-85-0	BENZOIC ACID	17.5	3.2570	8.5×10^{-4}	9.8×10^{-7}
111P	11096-82-5	AROCLOR-1260	17.5	125.7140	5.7×10^{-5}	6.6×10^{-8}

STI : ANALYSIS FOR SAMPLE TYPE: TEST PIT 20 GRID ELEMENT 21:5; AREA = (100 x 150) ft²

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	591-78-6	2-HEXANONE	22.5	4.8000	2.8×10^{-3}	9.7×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	22.5	26.3560	7.1×10^{-3}	2.5×10^{-5}
86V	108-88-3	TOLUENE	22.5	17.4220	1.4×10^{-3}	4.9×10^{-6}
38V	100-41-4	ETHYLBENZENE	22.5	16.1780	8.4×10^{-4}	2.9×10^{-6}
	95-47-6	TOTAL XYLENES	22.5	70.6440	2.5×10^{-3}	8.7×10^{-6}
7V	108-90-7	CHLOROBENZENE	22.5	0.8000	1.7×10^{-4}	5.9×10^{-7}
11V	71-55-6	1,1,1-TRICHLOROETHANE	22.5	1.3780	2.8×10^{-4}	9.7×10^{-7}
10V	75-34-3	1,1-DICHLOROETHANE	22.5	0.3560	2.4×10^{-4}	8.3×10^{-7}
10V	107-06-2	1,2-DICHLOROETHANE	22.5	0.7110	4.6×10^{-4}	1.6×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	22.5	4.4890	3.9×10^{-4}	1.4×10^{-6}
87V	79-01-6	TRICHLOROETHENE	22.5	7.4000	1.0×10^{-3}	3.5×10^{-6}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	22.5	0.3560	1.1×10^{-4}	3.8×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	244.4440	5.8×10^{-4}	2.0×10^{-6}
1B	83-32-9	ACENAPHTHENE	22.5	37.7780	3.6×10^{-4}	1.2×10^{-6}
72B	56-55-3	BENZO(A)ANTHRACENE	22.5	2453.3330	5.6×10^{-4}	1.9×10^{-6}
74B	205-99-2	BENZO(B)FLUORANTHENE	22.5	2322.2220	7.6×10^{-4}	2.6×10^{-6}
	207-08-9	BENZO(K)FLUORANTHENE	22.5	2322.2220	4.9×10^{-4}	1.7×10^{-6}
79B	191-24-2	BENZO(G,H,I)PERYLENE	22.5	1022.2220	9.9×10^{-5}	3.4×10^{-7}
73B	50-32-8	BENZO(A)PYRENE	22.5	1034.4440	2.7×10^{-4}	9.4×10^{-7}
76B	218-01-9	CHRYSENE	22.5	3353.3330	4.5×10^{-4}	1.6×10^{-6}
82B	53-70-3	DIBENZO(A,H)ANTHRACENE	22.5	226.6670	4.7×10^{-5}	1.6×10^{-7}
39B	206-44-0	FLUORANTHENE	22.5	1750.0000	1.9×10^{-3}	6.6×10^{-6}
80B	86-73-7	FLUORENE	22.5	228.5560	9.4×10^{-4}	3.3×10^{-6}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	22.5	622.2220	9.2×10^{-5}	3.2×10^{-7}
55B	91-20-3	NAPHTHALENE	22.5	1204.5560	8.7×10^{-3}	3.0×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	22.5	4076.2220		
81B	85-01-8	PHENANTHRENE	22.5	2688.4440	4.1×10^{-3}	1.4×10^{-5}
84B	129-00-0	PYRENE	22.5	4780.0000	2.8×10^{-3}	9.7×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	22.5	268.8890	4.8×10^{-3}	1.7×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	22.5	135.5560	1.9×10^{-3}	6.6×10^{-6}
	65-85-0	BENZOIC ACID	22.5	106.6670	9.1×10^{-3}	3.2×10^{-5}
65A	108-95-2	PHENOL	22.5	480.0000	9.2×10^{-2}	3.2×10^{-4}
	95-48-7	2-METHYLPHENOL	22.5	71.1110	1.7×10^{-2}	5.9×10^{-5}
	106-44-	-METHYLPHENOL	22.5	516.6670	5.8×10^{-2}	2.0×10^{-4}
34A	105-67-9	2,4-DIMETHYLPHENOL	22.5	1053.3330	2.4×10^{-2}	8.3×10^{-5}
107P	11097-	AROCLOR-1254	22.5	2755.5560	1.1×10^{-3}	3.8×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 23 GRID ELEMENT 4:6; AREA = (100 x 100) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	108-10-1	4-METHYL-2-PENTANONE	12.5	0.4000	1.8×10^{-4}	4.2×10^{-7}
86V	108-88-3	TOLUENE	12.5	0.3200	9.4×10^{-5}	2.2×10^{-7}
38V	100-41-4	ETHYLBENZENE	12.5	9.0400	5.7×10^{-4}	1.3×10^{-6}
	95-47-6	TOTAL XYLENES	12.5	4.4800	3.8×10^{-4}	8.8×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	12.5	5.4400	4.4×10^{-4}	1.0×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	12.5	112.4000	3.4×10^{-4}	7.9×10^{-7}
1B	83-32-9	ACENAPHTHENE	12.5	23.3600	2.6×10^{-4}	6.0×10^{-7}
76B	218-01-9	CHRYSENE	12.5	69.0000	3.3×10^{-5}	7.6×10^{-8}
39B	206-44-0	FLUORANTHENE	12.5	24.6400	1.0×10^{-4}	2.3×10^{-7}
80B	86-73-7	FLUORENE	12.5	67.2000	4.1×10^{-4}	9.5×10^{-7}
55B	91-20-3	NAPHTHALENE	12.5	105.6000	1.7×10^{-3}	3.9×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	12.5	297.6000		
81B	85-01-8	PHENANTHRENE	12.5	118.8000	5.0×10^{-4}	1.2×10^{-6}
84B	129-00-0	PYRENE	12.5	52.4000	1.3×10^{-4}	3.0×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	12.5	26.8800	1.0×10^{-3}	2.3×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	12.5	25.6000	6.3×10^{-4}	1.5×10^{-6}
64A	87-86-5	PENTACHLOROPHENOL	12.5	33.6000	5.7×10^{-4}	1.3×10^{-6}
107P	11097-69-1	AROCLOR-1254	12.5	80.0000	1.0×10^{-4}	2.3×10^{-7}
111P	11096-82-5	AROCLOR-1260	12.5	472.0000	1.4×10^{-4}	3.2×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 24 GRID ELEMENT 3:3; AREA = (100 x 100) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
4V	71-43-2	BENZENE	12.5	0.0800	5.7×10^{-5}	1.3×10^{-7}
76B	218-01-9	CHRYSENE	12.5	5.4400	5.8×10^{-6}	1.3×10^{-8}
81B	85-01-8	PHENANTHRENE	12.5	5.4400	6.2×10^{-5}	1.4×10^{-7}

STATIST ALYSIS FOR SAMPLE TYPE: TEST PIT 25 GRID ELEMENT 3:4; AREA = (100 x 150) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
4V	71-43-2	BENZENE	17.5	0.2860	1.4×10^{-4}	4.9×10^{-7}
38V	100-41-4	ETHYLBENZENE	17.5	5.4290	4.0×10^{-4}	1.4×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	2.8570	2.8×10^{-4}	9.7×10^{-7}
1B	83-32-9	ACENAPHTHENE	17.5	48.5710	4.3×10^{-4}	1.5×10^{-6}
76B	218-01-9	CHRYSENE	17.5	23.1430	1.6×10^{-5}	5.5×10^{-8}
39B	206-44-0	FLUORANTHENE	17.5	13.1430	6.8×10^{-5}	2.4×10^{-7}
80B	86-73-7	FLUORENE	17.5	51.4290	3.4×10^{-4}	1.2×10^{-6}
	91-57-6	2-METHYLNAPHTHALENE	17.5	148.5710		
81B	85-01-8	PHENANTHRENE	17.5	122.8570	5.1×10^{-4}	1.8×10^{-6}
84B	129-00-0	PYRENE	17.5	37.1430	1.1×10^{-4}	3.8×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	17.5	40.0000	1.3×10^{-3}	4.5×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	25.1430	6.2×10^{-4}	2.1×10^{-6}
56B	98-95-3	NITROBENZENE	17.5	82.8570		
	132-64-9	DIBENZOFURAN	17.5	31.4290		
111P	11096-82-5	AROCLOR-1260	17.5	180.0000	7.3×10^{-5}	2.5×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 26 GRID ELEMENT 3:5; AREA = (100 x 150) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
111P	11096-82-5	AROCLOR-1260	17.5	13.1430	1.2×10^{-5}	4.2×10^{-8}

STATISTICAL ... SIS FOR SAMPLE TYPE: TEST PIT 27 GRID ELEMENT 4:5; A ... = (100 x 150) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	108-10-1	4-METHYL-2-PENTANONE	17.5	4.8570	2.2×10^{-3}	7.6×10^{-6}
38V	100-41-4	ETHYLBENZENE	17.5	8.8570	5.6×10^{-4}	1.9×10^{-6}
	95-47-6	TOTAL XYLENES	17.5	13.4290	8.0×10^{-4}	2.8×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	175.7140	4.6×10^{-4}	1.6×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	83.4290	1.0×10^{-3}	3.5×10^{-6}
78B	120-12-7	ANTHRACENE	17.5	25.7140	5.5×10^{-5}	1.9×10^{-7}
79B	191-24-2	BENZO(G,H,I)PERYLENE	17.5	4.0000	2.3×10^{-6}	8.0×10^{-9}
73B	50-32-8	BENZO(A)PYRENE	17.5	31.4290	2.5×10^{-5}	8.7×10^{-8}
76B	218-01-9	CHRYSENE	17.5	57.1430	2.9×10^{-5}	1.0×10^{-7}
82B	53-70-3	DIBENZO(A,H)ANTHRACENE	17.5	0.8570	1.1×10^{-6}	3.8×10^{-9}
39B	206-44-0	FLUORANTHENE	17.5	51.4290	1.7×10^{-4}	5.9×10^{-7}
83B	193-39-5	INDENO(1,2,3-CD)PYRENE	17.5	3.1430	2.5×10^{-6}	8.7×10^{-9}
55B	91-20-3	NAPHTHALENE	17.5	371.4290	3.9×10^{-3}	1.4×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	17.5	742.8570		
81B	85-01-8	PHENANTHRENE	17.5	225.7140	7.7×10^{-4}	2.7×10^{-6}
84B	129-00-0	PYRENE	17.5	71.4290	1.6×10^{-4}	5.5×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	17.5	20.2860	8.4×10^{-4}	2.9×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	17.5	18.2860	8.4×10^{-4}	2.9×10^{-6}
27B	106-46-7	1,4-DICHLOROBENZENE	17.5	82.8570	2.0×10^{-3}	6.9×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	30.0000	7.0×10^{-4}	2.4×10^{-6}
	132-64-9	DIBENZOFURAN	17.5	85.7140		
21A	88-06-2	2,4,6-TRICHLOROPHENOL	17.5	65.7140	4.0×10^{-3}	1.4×10^{-5}
111P	11096-82-5	AROCLOR-1260	17.5	16428.5710	1.6×10^{-3}	5.5×10^{-6}

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STA ANALYSIS FOR SAMPLE TYPE: TEST PIT 28 GRID ELEMENTS 10:6, 10:7, 11:6, 11:7; AREAS = (40 x 100) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
7V	108-90-7	CHLOROBENZENE	17.5	0.1140	4.5×10^{-5}	4.2×10^{-8}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	3.6000	3.3×10^{-5}	3.0×10^{-8}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 29 GRID ELEMENTS 13:8, 14:8, 13:9, 14:9; AREAS = (40 x 50) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
38V	100-41-4	ETHYLBENZENE	17.5	0.9710	1.2×10^{-4}	5.5×10^{-8}
	95-47-6	TOTAL XYLENES	17.5	7.4290	5.3×10^{-4}	2.4×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	1090.2860	1.6×10^{-3}	7.4×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	17.5	14.8570	3.2×10^{-4}	1.5×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	17.5	28.5710	3.9×10^{-5}	1.8×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	17.5	28.5710	2.5×10^{-5}	1.1×10^{-8}
73B	50-32-8	BENZO(A)PYRENE	17.5	25.1430	2.2×10^{-5}	1.0×10^{-8}
76B	218-01-9	CHRYSENE	17.5	32.5710	2.0×10^{-5}	9.2×10^{-9}
84B	129-00-0	PYRENE	17.5	12.5710	5.1×10^{-5}	2.4×10^{-8}
65A	108-95-2	PHENOL	17.5	11.4290	7.3×10^{-3}	3.3×10^{-6}
	106-44-5	4-METHYLPHENOL	17.5	5.1430	2.5×10^{-3}	1.2×10^{-6}
34A	105-67-9	2,4-DIMETHYLPHENOL	17.5	7.4290	8.2×10^{-4}	3.8×10^{-7}

STATI: NALYSIS FOR SAMPLE TYPE: TEST PIT 31 GRID ELEMENTS 16:5 AND 17:5; AREAS = (72 x 150) ; (100 x 150) ft^2

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (16) (lbs/day)	LOADING (17) (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	162.8570	4.4×10^{-4}	1.1×10^{-6}	1.5×10^{-6}
76B	218-01-9	CHRYSENE	17.5	11.4290	9.6×10^{-6}	2.4×10^{-8}	3.3×10^{-8}
107P	11097-69-1	AROCLOR-1254	17.5	125.7140	1.4×10^{-4}	3.5×10^{-7}	4.9×10^{-7}
111P	11096-82-5	AROCLOR-1260	17.5	160.0000	6.7×10^{-5}	1.7×10^{-7}	2.3×10^{-7}

STATISTICAL A[illegible].S FOR SAMPLE TYPE: TEST PIT 32 GRID ELEMENT 18:6; EA = $(100 \times 100)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	20.0670	1.1×10^{-4}	2.5×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 35 GRID ELEMENTS 22:6; AREA = $(150 \times 100)\ ft^2$
22:5; AREA = $(150 \times 150)\ ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (22:6) (lbs/day)	LOADING (22:5) (lbs/day)
86V	108-88-3	TOLUENE	7.5	26.1330	1.9×10^{-3}	6.6×10^{-6}	9.9×10^{-6}
38V	100-41-4	ETHYLBENZENE	7.5	138.6670	3.6×10^{-3}	1.2×10^{-5}	1.9×10^{-5}
	95-47-6	TOTAL XYLENES	7.5	906.6670	1.4×10^{-2}	4.9×10^{-5}	7.3×10^{-5}
85V	127-18-4	TETRACHLOROETHENE	7.5	19.2000	1.0×10^{-3}	3.5×10^{-6}	5.2×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	7.5	1150.0000	1.6×10^{-3}	5.5×10^{-6}	8.3×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	7.5	362.6670	2.8×10^{-3}	9.7×10^{-6}	1.5×10^{-5}
70B	84-66-2	DIETHYL PHTHALATE	7.5	64.0000	4.1×10^{-3}	1.4×10^{-5}	2.1×10^{-5}
72B	56-55-3	BENZO(A)ANTHRACENE	7.5	27.0000	2.7×10^{-5}	9.4×10^{-8}	1.4×10^{-7}
74B	205-99-2	BENZO(B)FLUORANTHENE	7.5	21.3330	1.7×10^{-5}	5.9×10^{-8}	8.8×10^{-8}
	207-08-9	BENZO(K)FLUORANTHENE	7.5	21.3330	1.5×10^{-5}	5.2×10^{-8}	7.8×10^{-8}
76B	218-01-9	CHRYSENE	7.5	27.4670	1.7×10^{-5}	5.9×10^{-8}	8.8×10^{-8}
39B	206-44-0	FLUORANTHENE	7.5	132.0000	3.2×10^{-4}	1.1×10^{-6}	1.7×10^{-6}
80B	86-73-7	FLUORENE	7.5	85.3330	4.8×10^{-4}	1.7×10^{-6}	2.5×10^{-6}
55B	91-20-3	NAPHTHALENE	7.5	528.0000	5.0×10^{-3}	1.7×10^{-5}	2.6×10^{-5}
	91-57-6	2-METHYLNAPHTHALENE	7.5	746.6670			
81B	85-01-8	PHENANTHRENE	7.5	197.3330	7.0×10^{-4}	2.4×10^{-6}	3.6×10^{-6}
84B	129-00-0	PYRENE	7.5	269.5330	4.1×10^{-4}	1.4×10^{-6}	2.1×10^{-6}
	95-50-1	1,2-DICHLOROBENZENE	7.5	154.6670	3.3×10^{-3}	1.1×10^{-5}	1.7×10^{-5}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	7.5	50.1330	9.9×10^{-4}	3.4×10^{-6}	5.1×10^{-6}
111P	11096-82-5	AROCLOR-1260	7.5	1173.3330	2.6×10^{-4}	9.0×10^{-7}	1.4×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 36 GRID ELEMENT 16:16; AREA = $(72 \times 100) ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	7.5	38.4000	1.6×10^{-4}	2.7×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 37 GRID ELEMENTS 13:13; 14:13; AREAS = $(40 \times 50) ft^2$
13:14, 14:14; AREAS = $(40 \times 100) ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING #:13 (lbs/day)	LOADING #:14 (lbs/day)
58A	100-02-7	4-NITROPHENOL	22.5	14.4440	4.4×10^{-3}	2.0×10^{-6}	4.1×10^{-6}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 38 GRID ELEMENT 16:15; AREA = $(72 \times 100) ft^2$

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
38V	100-41-4	ETHYLBENZENE	12.5	2.0000	2.0×10^{-4}	3.3×10^{-7}
85V	127-18-4	TETRACHLOROETHENE	12.5	1.2000	1.6×10^{-4}	2.7×10^{-7}
87V	79-01-6	TRICHLOROETHENE	12.5	2.4000	4.8×10^{-4}	8.0×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	12.5	118.4000	3.5×10^{-4}	5.8×10^{-7}
70B	84-66-2	DIETHYL PHTHALATE	12.5	21.6000	2.0×10^{-3}	3.3×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	12.5	68.0000	5.1×10^{-4}	8.5×10^{-7}
78B	120-12-7	ANTHRACENE	12.5	16.0000	4.0×10^{-5}	6.7×10^{-8}
81B	85-01-8	PHENANTHRENE	12.5	44.0000	2.5×10^{-4}	4.2×10^{-7}
84B	129-00-0	[illegible]ENE	12.5	20.4000	[illegible]$.0 \times 10^{-5}$	1.2×10^{-7}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	12.5	21.2000	5.5×10^{-4}	9.1×10^{-7}

AR303129

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 09 GRID ELEMENTS 7;14,16; 8;14,16 AREAS ≈ (50 x 100) ft^2

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	11	175.5500	7.4×10^{1}		
	78-93-3	2-BUTANONE	2	140.0000	1.1×10^{1}	1.2×10^{-2}	1.4×10^{-5}
	591-78-6	2-HEXANONE	1	37.0000	1.4×10^{0}	1.2×10^{-3}	1.4×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	3	73.6700	8.5×10^{0}	3.3×10^{-3}	3.8×10^{-6}
86V	108-88-3	TOLUENE	8	108.5000	3.3×10^{1}	2.2×10^{-3}	2.5×10^{-6}
38V	100-41-4	ETHYLBENZENE	11	195.5500	8.3×10^{1}	2.5×10^{-3}	2.9×10^{-6}
	95-47-6	TOTAL XYLENES	12	693.7500	3.2×10^{2}	6.9×10^{-3}	8.0×10^{-6}
7V	108-90-7	CHLOROBENZENE	6	67.5000	1.6×10^{1}	1.3×10^{-3}	1.5×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	4	3.0000	4.6×10^{-1}	8.3×10^{-5}	9.6×10^{-8}
87V	79-01-6	TRICHLOROETHENE	3	7.0000	8.1×10^{-1}	2.3×10^{-4}	2.7×10^{-7}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	3	10.3300	1.2×10^{0}	1.1×10^{-3}	1.3×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	7	1885.7100	5.1×10^{2}	9.5×10^{-4}	1.1×10^{-6}
68B	84-74-2	DI-N-BUTYL PHTHALATE	9	1578.7500	4.9×10^{2}	3.4×10^{-3}	3.9×10^{-6}
1B	83-32-9	ACENAPHTHENE	2	700.0000	5.4×10^{1}	4.6×10^{-4}	5.3×10^{-7}
78B	120-12-7	ANTHRACENE	1	150.0000	5.8×10^{0}	2.0×10^{-5}	2.3×10^{-8}
72B	56-55-3	BENZO(A)ANTHRACENE	1	140.0000	5.4×10^{0}	8.9×10^{-6}	1.0×10^{-8}
76B	218-01-9	CHRYSENE	4	87.2500	1.3×10^{1}	1.1×10^{-5}	1.3×10^{-8}
39B	206-44-0	FLUORANTHENE	2	134.0000	1.0×10^{0}	1.2×10^{-5}	1.4×10^{-8}
80B	86-73-7	FLUORENE	3	399.6700	4.6×10^{1}	3.2×10^{-4}	3.7×10^{-7}
55B	91-20-3	NAPHTHALENE	8	2045.5000	6.3×10^{0}	2.5×10^{-4}	2.9×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	11	6676.6400	2.8×10^{3}		
81B	85-01-8	PHENANTHRENE	5	924.0000	1.8×10^{2}	6.6×10^{-4}	7.6×10^{-7}
84B	129-00-0	PYRENE	4	182.5000	2.8×10^{1}	8.7×10^{-5}	1.0×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	4	275.0000	4.2×10^{1}	1.4×10^{-3}	1.6×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	1	120.0000	4.6×10^{0}	3.3×10^{-4}	3.8×10^{-7}
27B	106-46-7	1,4-DICHLOROBENZENE	1	520.0000	2.0×10^{1}	7.6×10^{-4}	8.8×10^{-7}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	1	3200.0000	1.2×10^{2}	1.8×10^{-3}	2.1×10^{-6}
	106-44-5	4-METHYLPHENOL	1	73.0000	2.8×10^{0}	1.7×10^{-3}	2.0×10^{-6}
34A	105-67-9	2,4-DIMETHYLPHENOL	1	82.0000	3.2×10^{0}	4.6×10^{-4}	5.3×10^{-7}
58A	100-02-7	4-NITROPHENOL	1	1100.0000	4.2×10^{1}	9.1×10^{-3}	1.1×10^{-5}
107P	11097-69-1	AROCLOR-1254	3	2263.3300	2.6×10^{2}	2.3×10^{-4}	2.7×10^{-7}
111P	11096-82-5	AROCLOR-1260	11	3212.7300	1.4×10^{3}	2.9×10^{-4}	3.3×10^{-7}

AR303131

STATISTICAL [illegible]IS FOR SAMPLE TYPE: TEST PIT 39 GRID ELEMENTS 16:11 AN[illegible]12; AREAS = (72 × 50) ft²
17:11 AND [illegible]:12; AREAS = (100 × 50) ft²

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (16:#) (lbs/day)	LOADING (17:#) (lbs/day)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	1117.2000	1.6×10^{-3}	1.3×10^{-6}	1.8×10^{-6}
67B	85-68-7	BUTYL BENZYL PHTHALATE	22.5	10.6670	1.4×10^{-4}	1.2×10^{-7}	1.6×10^{-7}
76B	218-01-9	CHRYSENE	22.5	97.7780	4.1×10^{-5}	3.4×10^{-8}	4.7×10^{-8}
55B	91-20-3	NAPHTHALENE	22.5	16.7110	4.8×10^{-4}	4.0×10^{-7}	5.5×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	22.5	23.1110			
84B	129-00-0	PYRENE	22.5	133.3330	2.5×10^{-4}	2.1×10^{-7}	2.9×10^{-7}
111P	11096-82-5	AROCLOR-1260	22.5	364.4440	1.2×10^{-4}	1.0×10^{-7}	1.4×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: TEST PIT 40 GRID ELEMENTS 21:9 ; AREA = (100 × 50) ft²
22:9 ; AREA = (150 × 50) ft²

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC. (mg/L)	LOADING (21) (lbs/day)	LOADING (22) (lbs/day)
38V	100-41-4	ETHYLBENZENE	17.5	2.0000	2.0×10^{-4}	2.3×10^{-7}	3.5×10^{-7}
	95-47-6	TOTAL XYLENES	17.5	15.7140	8.9×10^{-4}	1.0×10^{-6}	1.5×10^{-6}
23V	67-66-3	CHLOROFORM	17.5	0.2290	2.1×10^{-4}	2.4×10^{-7}	3.6×10^{-7}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	17.5	142.8570	4.0×10^{-4}	4.6×10^{-7}	6.9×10^{-7}
1B	83-32-9	ACENAPHTHENE	17.5	31.4290	3.2×10^{-4}	3.7×10^{-7}	5.5×10^{-7}
72B	56-55-3	BENZO(A)ANTHRACENE	17.5	19.2000	2.1×10^{-5}	2.4×10^{-8}	3.6×10^{-8}
76B	218-01-9	CHRYSENE	17.5	21.0290	1.5×10^{-5}	1.7×10^{-8}	2.6×10^{-8}
39B	206-44-0	FLUORANTHENE	17.5	39.7140	1.4×10^{-4}	1.6×10^{-7}	2.4×10^{-7}
55B	91-20-3	NAPHTHALENE	17.5	80.0000	1.4×10^{-3}	1.6×10^{-6}	2.4×10^{-6}
81B	85-01-8	PHENANTHRENE	17.5	97.9430	4.4×10^{-4}	5.1×10^{-7}	7.6×10^{-7}
84B	129-00-0	PYRENE	17.5	77.0290	1.7×10^{-4}	2.0×10^{-7}	2.9×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	17.5	51.4290	1.6×10^{-3}	1.8×10^{-6}	2.8×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	17.5	14.5710	4.3×10^{-4}	5.0×10^{-7}	7.4×10^{-7}
18B	111-44-4	BIS(2-CHLOROETHYL)ETHER	17.5	20.1140			
65A	108-95-2	PHENOL	17.5	3.2570	3.1×10^{-3}	3.6×10^{-6}	5.4×10^{-6}
	106-44-5	4-METHYLPHENOL	17.5	2.8000	1.7×10^{-3}	2.0×10^{-6}	2.9×10^{-6}
111P	11096-82-5	AROCLOR-1260	17.5	594.2860	1.6×10^{-4}	1.8×10^{-7}	2.8×10^{-7}

STATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE O[illegible]RID ELEMENTS 9:15,16,17,18; AREAS = (40 x 100)

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETRIC MEAN	REPRESENTATIVE CONC (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
	67-64-1	ACETONE	11	175.5500	7.4×10^{1}		
	78-93-3	2-BUTANONE	2	140.0000	1.1×10^{1}	1.2×10^{-2}	1.1×10^{-5}
	591-78-6	2-HEXANONE	1	37.0000	1.4×10^{0}	1.2×10^{-3}	1.1×10^{-6}
	108-10-1	4-METHYL-2-PENTANONE	3	73.6700	8.5×10^{0}	3.3×10^{-3}	3.0×10^{-6}
86V	108-88-3	TOLUENE	8	108.5000	3.3×10^{1}	2.2×10^{-3}	2.0×10^{-6}
38V	100-41-4	ETHYLBENZENE	11	195.5500	8.3×10^{1}	2.5×10^{-3}	2.3×10^{-6}
	95-47-6	TOTAL XYLENES	12	693.7500	3.2×10^{2}	6.9×10^{-3}	6.4×10^{-6}
7V	108-90-7	CHLOROBENZENE	6	67.5000	1.6×10^{1}	1.3×10^{-3}	1.2×10^{-6}
85V	127-18-4	TETRACHLOROETHENE	4	3.0000	4.6×10^{-1}	8.3×10^{-5}	7.7×10^{-8}
87V	79-01-6	TRICHLOROETHENE	3	7.0000	8.1×10^{-1}	2.3×10^{-4}	2.1×10^{-7}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	3	10.3300	1.2×10^{0}	1.1×10^{-3}	1.0×10^{-6}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	7	1885.7100	5.1×10^{2}	9.5×10^{-4}	8.8×10^{-7}
68B	84-74-2	DI-N-BUTYL PHTHALATE	8	1578.7500	4.9×10^{2}	3.4×10^{-3}	3.1×10^{-6}
1B	83-32-9	ACENAPHTHENE	2	700.0000	5.4×10^{1}	4.6×10^{-4}	4.3×10^{-7}
78B	120-12-7	ANTHRACENE	1	150.0000	5.8×10^{0}	2.0×10^{-5}	1.8×10^{-8}
72B	56-55-3	BENZO(A)ANTHRACENE	1	140.0000	5.4×10^{0}	8.9×10^{-6}	8.2×10^{-9}
76B	218-01-9	CHRYSENE	4	87.2500	1.3×10^{1}	1.1×10^{-5}	1.0×10^{-8}
39B	206-44-0	FLUORANTHENE	2	134.0000	1.0×10^{0}	1.2×10^{-5}	1.1×10^{-8}
80B	86-73-7	FLUORENE	3	399.6700	4.6×10^{1}	3.2×10^{-4}	3.0×10^{-7}
55B	91-20-3	NAPHTHALENE	8	2045.5000	6.3×10^{0}	2.5×10^{-4}	2.3×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	11	6676.6400	2.8×10^{3}		
81B	85-01-8	PHENANTHRENE	5	924.0000	1.8×10^{2}	6.6×10^{-4}	6.1×10^{-7}
84B	129-00-0	PYRENE	4	182.5000	2.8×10^{1}	8.7×10^{-5}	8.0×10^{-8}
	95-50-1	1,2-DICHLOROBENZENE	4	275.0000	4.2×10^{1}	1.4×10^{-3}	1.3×10^{-6}
26B	541-73-1	1,3-DICHLOROBENZENE	1	120.0000	4.6×10^{0}	3.3×10^{-4}	3.0×10^{-7}
27B	106-46-7	1,4-DICHLOROBENZENE	1	520.0000	2.0×10^{1}	7.6×10^{-4}	7.0×10^{-7}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	1	3200.0000	1.2×10^{2}	1.8×10^{-3}	1.7×10^{-6}
	106-44-5	4-METHYLPHENOL	1	73.0000	2.8×10^{0}	1.7×10^{-3}	1.6×10^{-6}
34A	105-67-9	2,4-DIMETHYLPHENOL	1	82.0000	3.2×10^{0}	4.6×10^{-4}	4.3×10^{-7}
58A	100-02-7	4-NITROPHENOL	1	1100.0000	4.2×10^{1}	9.1×10^{-3}	8.4×10^{-6}
107P	11097-69-1	AROCLOR-1254	3	2263.3300	2.6×10^{2}	2.3×10^{-4}	2.1×10^{-7}
111P	11096-82-5	AROCLOR-1260	11	3212.7300	1.4×10^{3}	2.9×10^{-4}	2.7×10^{-7}

TATISTICAL ANALYSIS FOR SAMPLE TYPE: DOUGLASVILLE TEST PITS SITE 10 GRID ELEMENT 4:4 ; AREA = $(100 \times 150) ft^2$

PP NO	CAS NO	COMPOUND	# OF POSITIVE DETECTIONS	ARITHMETIC MEAN	REPRESENTATIVE CONC. (µg/kg)	LEACHATE CONC. (mg/L)	LOADING (lbs/day)
4V	71-43-2	BENZENE	2	1.0000	1.4×10^{-1}	8.4×10^{-5}	2.9×10^{-7}
38V	100-41-4	ETHYLBENZENE	1	19.0000	1.4×10^{0}	1.6×10^{-4}	5.5×10^{-7}
	95-47-6	TOTAL XYLENES	1	10.0000	7.1×10^{-1}	1.1×10^{-4}	3.8×10^{-7}
1B	83-32-9	ACENAPHTHENE	1	170.0000	1.2×10^{1}	1.7×10^{-4}	5.9×10^{-7}
76B	218-01-9	CHRYSENE	2	74.5000	1.1×10^{1}	9.4×10^{-6}	3.3×10^{-8}
39B	206-44-0	FLUORANTHENE	1	46.0000	3.3×10^{0}	2.7×10^{-5}	9.4×10^{-8}
80B	86-73-7	FLUORENE	1	180.0000	1.3×10^{1}	1.4×10^{-4}	4.9×10^{-7}
	91-57-6	2-METHYLNAPHTHALENE	1	520.0000	3.7×10^{1}		
81B	85-01-8	PHENANTHRENE	2	249.0000	3.6×10^{1}	2.2×10^{-4}	7.6×10^{-7}
84B	129-00-0	PYRENE	1	130.0000	9.3×10^{0}	4.1×10^{-5}	1.4×10^{-7}
	95-50-1	1,2-DICHLOROBENZENE	1	140.0000	1.0×10^{1}	5.2×10^{-4}	1.8×10^{-6}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	1	88.0000	6.3×10^{0}	2.4×10^{-4}	8.3×10^{-7}
56B	98-95-3	NITROBENZENE	1	290.0000	2.1×10^{1}		
	132-64-9	DIBENZOFURAN	1	110.0000	7.9×10^{0}		
112P	11096-82-5	AROCLOR-1260	2	430.0000	6.1×10^{1}	3.5×10^{-5}	1.2×10^{-7}

STATISTICAL IS FOR SAMPLE TYPE: TEST PIT 16

NOT USED

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	19.4440	1.0×10^{-4}

STA ANALYSIS FOR SAMPLE TYPE: TEST PIT 18

PP NO	CAS NO	COMPOUND	FACTOR	CONCENTRATION	LEACHATE CONC (mg/L)
	591-78-6	2-HEXANONE	22.5	15.4220	6.2×10^{-3}
	108-10-1	4-METHYL-2-PENTANONE	22.5	9.4220	3.5×10^{-3}
86V	108-88-3	TOLUENE	22.5	37.7780	2.4×10^{-3}
38V	100-41-4	ETHYLBENZENE	22.5	1558.7110	1.9×10^{-2}
	95-47-6	TOTAL XYLENES	22.5	1086.7560	1.6×10^{-2}
11V	71-55-6	1,1,1-TRICHLOROETHANE	22.5	0.5330	1.5×10^{-4}
85V	127-18-4	TETRACHLOROETHENE	22.5	3.1110	3.0×10^{-4}
87V	79-01-6	TRICHLOROETHENE	22.5	3.6440	6.4×10^{-4}
30V	156-60-5	TRANS-1,2-DICHLOROETHENE	22.5	1.5110	2.8×10^{-4}
46V	74-83-9	BROMOMETHANE	22.5	0.3560	1.2×10^{-4}
66B	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	22.5	299.1110	6.6×10^{-4}
70B	84-66-2	DIETHYL PHTHALATE	22.5	577.7780	1.8×10^{-2}
1B	83-32-9	ACENAPHTHENE	22.5	71.1110	5.6×10^{-4}
78B	120-12-7	ANTHRACENE	22.5	59.7780	9.8×10^{-5}
72B	56-55-3	BENZO(A)ANTHRACENE	22.5	18.2220	2.0×10^{-5}
76B	218-01-9	CHRYSENE	22.5	693.8890	1.6×10^{-4}
39B	206-44-0	FLUORANTHENE	22.5	1165.6670	1.4×10^{-3}
80B	86-73-7	FLUORENE	22.5	220.0000	9.2×10^{-4}
55B	91-20-3	NAPHTHALENE	22.5	2177.7780	1.3×10^{-2}
	91-57-6	2-METHYLNAPHTHALENE	22.5	2088.8890	
81B	85-01-8	PHENANTHRENE	22.5	2200.0000	3.6×10^{-3}
84B	129-00-0	PYRENE	22.5	1291.6670	1.2×10^{-3}
	95-50-1	1,2-DICHLOROBENZENE	22.5	711.1110	9.3×10^{-3}
26B	541-73-1	1,3-DICHLOROBENZENE	22.5	37.7780	1.4×10^{-3}
27B	106-46-7	1,4-DICHLOROBENZENE	22.5	275.5560	4.5×10^{-3}
8B	120-82-1	1,2,4-TRICHLOROBENZENE	22.5	360.0000	3.8×10^{-3}
	65-85-0	BENZOIC ACID	22.5	3.3780	8.7×10^{-4}
64A	87-86-5	PENTACHLOROPHENOL	22.5	7288.8890	2.2×10^{-2}
107P	11097-69-1	AROCLOR-1254	22.5	1915.5560	9.0×10^{-4}
111P	11096-82-5	AROCLOR-1260	22.5	496.8890	1.4×10^{-4}

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 1
SUBJECT: PARTITION COEFFICIENTS (Kd) VINYL CHLORIDE & BENZENE		CHECKED BY: LAS	DATE: 6/10/88

$$Kd = foc\ Koc$$

foc is estimated using the average TOC values from clean test pit samples as follows:

Sample	TOC (mg/kg)
DS-TP143-145	6300
DS-TP342-146	8100
DS-TP343-145	6700
DS-TP344-144	4700

$$\text{Geometric Mean} = \sqrt[4]{(6300)(8100)(6700)(4700)} = 6300 ✓$$

$$\frac{6300\ mg}{Kg} \left| \frac{Kg}{1 \times 10^6\ mg} \right. = 6.3 \times 10^{-3}\ \frac{Kg}{Kg} = 0.0063 ✓$$

Koc for vinyl chloride = 8.2 (EPA, 1982)

Koc for benzene = 65 (EPA, 1982)

$$Kd\text{, vinyl chloride} = (0.0063)(8.2) = 0.052 ✓$$

$$Kd\text{, benzene} = (0.0063)(65) = 0.41 ✓$$

NUS CORPORATION AND SUBSIDIARIES			STANDARD CALCULATION SHEET
CLIENT: USEPA	FILE NO.: 618Y	BY: RJH	PAGE 1 OF 1
SUBJECT: PARTITION COEFFICIENTS (Kd)		CHECKED BY: LAS	DATE: 6/24/8?

1,2- DICHLOROETHANE
TRICHLOROETHENE
BIS(2-ETHYLHEXYL) PHTHALATE
POLYCHLORINATED BIPHENYLS

$Kd = f_{oc} K_{oc}$

$f_{oc} = 0.0063$ (See calculations for benzene and vinyl chloride)

Compound	Koc (EPA, 1982)	Kd
1,2-dichloroethane	14	0.088 ✓
trichloroethene	126	0.79
bis(2-ethylhexyl)phthalate	2×10^{9}	1.3×10^{7} ✓
polychlorinated biphenyls (Aroclor 1260)	6.7×10^{6}	4.2×10^{4} ✓

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NUS CORPORATION AND SUBSIDIARIES

STANDARD CALCULATION SHEET

CLIENT: USEPA	FILE NO.: 61BY	BY: M. Dowiak	PAGE 1 OF
SUBJECT: Lead Loading Estimate		CHECKED BY:	DATE: 6-13-88

Total Extractable Mass (TEM) of Lead per unit weight of Soil.

1. Estimate basis -

a. Use TCLP results for TEM of lead in soil
correlate TCLP with TCL lead (see attachment 1)
(Use NUS RI results - Phases I (1984) and II (1987))

$Y = 2.23X - 240$

n = 29.

r = 0.84

where
(Y) = TCLP concentration, μg/l
(X) = TCL concentration, mg/kg
n = number pairs in regression est.
r = correlation coefficient

b. For (x), use weighted average concentration in each test pit
(see average calculation summary, attachment 2)

c. TCLP test method
(Reference - RCRA Background Document, TCLP, USEPA, OSW, 3-10-86).

Soil weight - 100g
extraction fluid - 2 liters distilled water.

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TEM cont.

2. Calculation

a. TEM in $\mu g/Kg$ (per test pit) =

$$(Y)\frac{\mu g}{l}\left(\frac{2\,l}{100\,g}\right)\frac{10^3 g}{Kg} = 20(Y)\frac{\mu g}{Kg}.$$

b. TEM per unit volume, lb/cf.
assume soil density, 120 lb/cf

$$TEM = (Y)\,20\frac{\mu g}{Kg}\left(\frac{0.454\ Kg}{1\ lb}\right)\left(\frac{120\ lb}{cf}\right)\left(\frac{g}{10^6 \mu g}\right)\left(\frac{1\ lb}{454\ g}\right)$$

$$= (Y)\,2.4\times 10^{-6}\ lb/cf$$

(See calculation summary on pages 3 & 4)

3. Loading Rate per grid element over time

a. TEM per grid area, lbs

= TEM x Volume grid area (cf).

= lb/grid

b. Annual loading estimate (conservative)

$$L = \frac{TEM_g}{365\ days} = \frac{lbs}{day}\ \text{per grid area.}$$

(See calculation summary on pages 5 & 6).

Table 1
Total Extractable Mass (TEM) Calculation
Lead

Test Pit Phase II 1987)	Weighted Avg. Concentration (X) mg/kg	TCLP[1] Correlation (Y) ug/l	TEM[2] lb/cf.
TP-			
01	213.84	234.7	5.63×10^{-4}
02	83.3	50	1.2×10^{-4}
03	9.16	50	1.2×10^{-4}
04	22.8	50	1.2×10^{-4}
05	480.24	830.9	1.99×10^{-3}
06	81.3	50	1.2×10^{-4}
07	134.26	59.4	1.43×10^{-4}
08	212.48	233.8	5.61×10^{-4}
	BDL	-	0
10	9146.6	20,156.9	4.8×10^{-2}
11	710	1343.3	3.2×10^{-3}
12	29.14	50	1.2×10^{-4}
13	1565.32	3250.7	7.8×10^{-3}
14	283.7	392.7	9.4×10^{-4}
15	12068.4	26,672.5	6.4×10^{-2}
16	BDL	-	0
17	2546.86	5439.5	1.3×10^{-2}
18	330.04	495.9	1.19×10^{-3}
19	BDL	-	0
20	1117.3	2251.5	5.4×10^{-3}
21	BDL	-	0
22	6326.9	13,868.9	3.3×10^{-2}
23	239.8	294.8	7.1×10^{-4}
24	BDL	-	0
	BDL	-	0

1 $Y = 2.23X - 240$ Note, if $x < 107$, use $Y = 50$ (page 1)
2 $TEM = (Y)\,2.4 \times 10^{-6}$ (see page 2)

NUS CORPORATION AND SUBSIDIARIES		STANDARD CALCULATION SHEET

CLIENT	FILE NO.: 618 Y	BY: M. Dowiat	PAGE 4 OF
SUBJECT:		CHECKED BY:	DATE: 6-13-8

Table 1 cont.

Test Pit (Phase II 1987)	Weighted Avg. Concentration mg/Kg.	TCLP correlation μg/l	TEM lb/cf
TP-			
26	BDL	-	0
27	143.66	80.36	1.93×10^{-4}
28	25.11	50	1.2×10^{-4}
29	BDL	-	0
30	1.44	50	1.2×10^{-4}
31	707.83	1338.4	3.2×10^{-3}
32	34.2	50	1.2×10^{-4}
33	BDL	-	0
34	70.61	50	1.2×10^{-4}
35	BDL	-	0
36	BDL	-	0
37	BDL	-	0
38	BDL	-	0
39	564.26	1018	2.4×10^{-3}
40	NA	ND	ND
41	NA	ND	ND
42	NA	ND	ND
43	NA	ND	ND
44	NA	ND	ND
45	NA	ND	ND
46	NA	ND	ND

Test Pits - Phase I (1984)
see pages 5 & 6

Notes - BDL - Below detection limits
NA - No analysis
ND - No data

NUS CORPORATION AND SUBSIDIARIES — STANDARD CALCULATION SHEET

CLIENT:	FILE NO.: 618Y	BY: M. Dowiak	PAGE 5 OF
SUBJECT:		CHECKED BY:	DATE: 6-14-88

Table 1, cont.

Test Pit (Phase I, 1984)	No. Samples & Total interval	Weighted Avg. Conc (x) mg/Kg	TCLP[1] correlation (Y) µg/l	TEM[2] lb/cf
S-1	ND	—	—	—
S-2	(1), 5'	66	50	1.2×10^{-4}
S-3	(1), 6.5'	240	295	7.1×10^{-4}
S-4	(2) Dup, 8'	10,330	22,796	6.7×10^{-2}
S-5	ND	-	-	-
S-6	(2), 1½-9'	10,195	22,495	5.4×10^{-2}
S-7	(4), 1½-10'	5,034	10,986	2.6×10^{-2}
S-8	(2), 5½-6'	525	931	2.2×10^{-3}
S-9	ND	-	-	-
S-[illegible]	ND	-	-	-
S-[illegible]	NT	-	-	-
S-12	ND	-	-	-
S-13	(3), 0-6'	17,100	37,893	9.1×10^{-2}
S-14	(2), 0-7'	2,045	4320	1.04×10^{-2}
S-15	ND	-	-	-
S-16	ND	-	-	-
S-17	ND	-	-	-
S-18	ND	-	-	-
S-19	ND	-	-	-
S-20	ND	-	-	-
S-21	(1), 5'	52	50	1.2×10^{-4}

[1] $Y = 2.23X - 240$ if $X < 107$, use $Y = 50$ (see pg. 1)
[2] $TEM = (Y)\, 2.4 \times 10^{-6}$ (see pg 2)

ND- No data

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NUS CORPORATION AND SUBSIDIARIES — **STANDARD CALCULATION SHEET**

CLIENT:	FILE NO.:	BY:	PAGE 6 OF
SUBJECT:		CHECKED BY:	DATE:

Test Pit Weighted average calculations
Phase I (1984)

S-7

depth	0 ft.	1.5	6	8	10 ft
conc.		430	11,000	310	15,000

$$\text{Avg.} = \frac{4(430) + 3(11{,}000) + 2(310) + 1(15{,}000)}{10}$$

$$= \frac{1720 + 33{,}000 + 620 + 15{,}000}{10} = 5034 \text{ mg/Kg}$$

TEM Calculations by Site Area

Area	Avg. Conc (X) mg/Kg	TCLP (Y) μg/l	TEM lb/cf	Descriptio[n]
1	1156.3	2339	5.6×10^{-3}	Facility

Table 2
Lead loading calculation summary – Annual rate basis
Reference Drawing attachment 3

Grid Area/ Test Pits	Area ft2	Depth ft	Vol. ft³	TEM lb/ft³	TEM, Area lbs	Loading/day lbs/10⁴ sf	Loading/day lbs-Total
Area 1 TP-4,5,7,8,11, 12,13,14,16,17	98,300	17.5	1.72×10^{6}	5.6×10^{-3}	9.6×10^{3}	2.6	26
Area 2, TP-23	17,500	17.5	3.06×10^{5}	7.1×10^{-4}	2.17×10^{2}	0.34	0.59
Area 3, TP-27	19,950	17.5	3.49×10^{5}	1.93×10^{-4}	6.74×10^{1}	0.093	0.18
Area 4, TP-28	32,000	17.5	5.6×10^{5}	1.2×10^{-4}	6.72×10^{1}	0.056	0.18
Area 5, TP-30	7,500	17.5	1.3×10^{5}	1.2×10^{-4}	1.58×10^{1}	0.057	0.043
Area 6, TP-31	25,800	22.5	5.81×10^{5}	3.2×10^{-3}	1.86×10^{3}	1.97	5.09
Area 7, S-14	30,000	7.0	2.1×10^{5}	1.04×10^{-2}	2.18×10^{3}	1.99	5.98
Area 8, TP-20	15,000	17.5	2.6×10^{5}	5.4×10^{-3}	1.4×10^{3}	2.56	3.85
Area 9, TP-34	22,500	17.5	3.94×10^{5}	1.2×10^{-4}	4.73×10^{1}	0.057	0.13
Area 10, TP-22	26,250	17.5	4.59×10^{5}	3.3×10^{-2}	1.52×10^{4}	15.8	41.5
Area 11, S-13	15,000	6.0	9×10^{4}	9.1×10^{-2}	8.19×10^{3}	14.9	22.4
Area 12, TP-32	10,000	17.5	1.75×10^{5}	1.2×10^{-4}	2.1×10^{1}	0.057	0.057
Area 13, S-8	17,500	6.0	1.05×10^{5}	2.2×10^{-3}	2.3×10^{2}	0.36	0.63
Area 14, S-21	17,500	5.0	8.75×10^{4}	1.2×10^{-4}	1.05×10^{1}	0.016	0.029
Area 15, TP-10	50,000	17.5	8.75×10^{5}	4.8×10^{-2}	4.2×10^{4}	23	115
Area 16, S-4	15,000	8.0	1.2×10^{5}	6.7×10^{-2}	8.04×10^{3}	14.7	22
Area 17, TP-39	3600	17.5	6.3×10^{4}	2.4×10^{-3}	1.5×10^{2}	–	0.41

Table 2, cont

Grid Area/ Test Pits	Area ft^2	Depth ft	Vol. ft^3	TEM lb/ft^3	TEM, Area lbs.	Loading/day $lbs/10^4sf$	Loading/day lbs-total
Area 18, S-7	10,000	10	1×10^5	2.6×10^{-2}	2.6×10^3	7.12	7.12
Area 19, S-6	10,000	9	9×10^4	5.4×10^{-2}	4.86×10^3	13.3	13.3
Area 20, S-3	25,000	6.5	1.63×10^5	7.1×10^{-4}	1.15×10^2	0.13	0.32
Area 21, TP-15	40,000	17.5	7×10^5	6.4×10^{-2}	4.48×10^4	30.7	122.7
Area 22, S-2	10,000	5.0	5×10^4	1.2×10^{-4}	6×10^0	0.016	0.016
Area 23, TP-6	50,000	17.5	8.75×10^5	1.2×10^{-4}	1.05×10^2	0.057	0.29
Area 24, TP-3	20,000	17.5	3.5×10^5	1.2×10^{-4}	4.2×10^1	0.057	0.12
Area 25, TP-01	29,200	17.5	5.1×10^5	5.63×10^{-4}	2.88×10^2	0.27	0.79
Area 26, TP-02	29,200	17.5	5.1×10^5	1.2×10^{-4}	6.12×10^1	0.057	0.17
Area 27, TP-18	5,000	22.5	1.13×10^5	1.19×10^{-3}	1.34×10^2	—	0.37
Totals							389.27

Attachment 1
618Y

--> PROG:ONEVREG FILE: LEAD1.DAT DATE:05-23-1988 PAGE 1

TCL X	A+(B*X)	A*EXP(B*X)	A+B*LOG(X)	A*X^B	TCLP Y
2420	5160.804	672.5444	9581.065	3181.984	3620
1290	2638.818	401.8104	8055.633	1993.306	2820
10700	23640.49	29299.92	13185.3	9607.895	23800
121	29.78946	235.8309	2317.357	343.142	249
10800	23663.67	30666.41	13207.85	9674.666	42300
11000	24310.04	33593.55	13252.35	9807.551	7720
51.1	-126.2166	228.4352	227.2637	180.7641	132
130	49.87607	236.8004	2491.314	361.941	50
870	1924.627	347.2742	7364.352	1612.59	1320
51.7	-124.8775	228.4977	255.5674	182.3598	215
17	-202.3225	224.9119	-2441.274	79.76674	22
3900	8463.937	1320.409	10738.14	4537.045	5140
146	85.5856	238.5338	2772.752	394.5605	172
20.7	-194.0647	225.2916	-1963.805	92.34235	136
858	1674.66	329.9898	7066.862	1472.01	1130
39[illegible]	630.1561	266.5957	5155.101	819.1127	746
2.[illegible]	-188.9315	225.5279	-1708.336	99.86619	105
7.7	-223.0787	223.9605	-4361.606	44.27036	76
54.6	-118.4051	228.7989	387.8975	189.911	130
10.5	-216.8295	224.2465	-3609.58	55.75091	142
11.3	-215.0441	224.3283	-3431.542	58.87886	190
675	1266.232	303.5799	6485.201	1231.566	764
12	-213.4816	224.3999	-3285.809	61.5694	78
141	74.42639	237.9907	2688.26	384.4702	593
39.9	-151.2133	227.272	-372.6231	150.4113	172
123	34.25314	236.046	2357.106	347.3497	606
47.7	-133.8049	228.0815	60.31641	171.7631	167
41.3	-148.0887	227.417	-289.0049	154.3173	283
861	1725.993	333.4677	7131.004	1501.246	239

A REG COEFF	-240.2639	223.1758	-9310.924	9.706658
B REG COEFF	2.231846	4.5583E-04	2424.685	.7434295
A STD ERROR	995.5807	48.4866	3362.456	3.685923
B STD ERROR	.2757498	6.017463E-05	599.0599	.0676535
A T-STAT	-.2413304	24.89194	-2.769085	5.985315
B T-STAT	8.093736	7.575119	4.047483	10.98878
STD ERR EST	4842.559	1.056752	7071.483	.7986022
R-SQUARED	.7081351	.6800282	.3776237	.817263
COVARIANCE	2.458248E+07	5020.7	12066.4	3.699664
F TEST	65.50856	57.38243	16.38212	120.7533
C[illegible]F	.8415077	.8246362	.614511	.904026
D[illegible]SN	2.964709	2.691965	2.363087	2.093317

Deleted Sample
#208
#308
#417
} ND/R

F

AR303147

APPENDIX F

TOXICITY PROFILES

APPENDIX F

TOXICITY PROFILES

ARSENIC (Clement Associates, Inc., 1985*)

Health Effects

Arsenic has been implicated in the production of skin cancer in humans. There is also extensive evidence that inhalation of arsenic compounds causes lung cancer in workers. Arsenic compounds cause chromosome damage in animals, and humans exposed to arsenic compounds have been reported to have an elevated incidence of chromosome aberrations. Arsenic compounds have been reported to be teratogenic, fetotoxic, and embryotoxic in several animal species, and an increased incidence of multiple malformations among children born to women occupationally exposed to arsenic has been reported. Arsenic compounds also cause noncancerous, possibly precancerous, skin changes in exposed individuals. Several cases of progressive polyneuropathy involving motor and sensory nerves and particularly affecting the extremities and myelinated long-axon neurons have been reported in individuals occupationally exposed to inorganic arsenic. Polyneuropathies have also been reported after the ingestion of arsenic-contaminated foods.

Toxicity to Wildlife and Domestic Animals

Various inorganic forms of arsenic appear to have similar levels of toxicity; they all seem to be much more toxic than organic forms. Acute toxicity to adult freshwater animals occurs at levels of arsenic trioxide as low as 812 µg/liter and at levels as low as 40 µg/liter in early life stages of aquatic organisms. Acute toxicity to saltwater fish occurs at levels around 15 mg/liter, while some invertebrates are affected at much lower levels (508 µg/liter). Arsenic toxicity does not appear to increase greatly with chronic exposure, and it does not seem that arsenic is bioconcentrated to a great degree.

Arsenic poisoning is a rare but not uncommon toxic syndrome among domestic animals. Arsenic causes hyperemia and edema of the gastrointestinal tract, hemorrhage of the cardiac serosal surfaces and peritoneum, and pulmonary congestion and edema; and it may cause liver necrosis. Arsenic toxicity to terrestrial wildlife was not reported in the literature reviewed.

*References for Appendix F are included in Volume I of this report.

BENZENE (Clement Associates, Inc., 1985)

Health Effects

Benzene is a recognized human carcinogen. Several epidemiological studies provided sufficient evidence of a causal relationship between benzene exposure and leukemia in humans. Benzene is a known inducer of aplastic anemia in humans, with a latent period of up to 10 years. It produces leukopenia and thrombocytopenia, which may progress to ancytopenia. Similar adverse effects on the blood-cell-producing system occur in animals exposed to benzene. In both humans and animals, benzene exposure is associated with chromosomal damage, although it is not mutagenic in microorganisms. Benzene was fetotoxic and caused embryo lethality in experimental animals.

Exposure to very high concentrations of benzene [about 20,000 ppm (66,000 mg/m^3) in air] can be fatal within minutes. The prominent signs are central nervous system depression and convulsions, with death usually following as a consequence of cardiovascular collapse. Milder exposure can produce vertigo, drowsiness, headache, nausea, and eventually unconsciousness if exposure continues. Deaths from cardiac sensitization and cardiac arrhythmias have also been reported after exposure to unknown concentrations. Although most benzene hazards are associated with inhalation exposure, dermal absorption of liquid benzene may occur, and prolonged or repeated skin contact may produce blistering, erythema, and a dry, scaly dermatitis.

Toxicity to Wildlife and Domestic Animals

The EC_{50} values for benzene in a variety of invertebrate and vertebrate freshwater aquatic species range from 5,300 µg/liter to 386,000 µg/liter. However, only values for the rainbow trout (5,300 µg/liter) were obtained from a flow-through test and were based on measured concentrations. Results based on unmeasured concentrations in static tests are likely to underestimate toxicity for relatively volatile compounds like benzene. A chronic test with *Daphnia magna* was incomplete, with no adverse effects observed at test concentrations as high as 98,000 µg/liter.

For saltwater species, acute values for one fish and five invertebrate species range from 10,900 µg/liter to 924,000 µg/liter. Freshwater and saltwater plant species that have been studied exhibit toxic effects at benzene concentrations ranging from 20,000 µg/liter to 525,000 µg/liter.

BIS(2-ETHYLHEXYL)PHTHALATE (Clement Associates, Inc., 1985)

Health Effects

Bis(2-ethylhexyl)phthalate (BEHP) is reported to be carcinogenic in rats and mice, causing increased incidences of hepatocellular carcinomas or neoplastic nodules after oral administration. Its status as a human carcinogen is considered indeterminate by the International Agency for Research on Cancer (IARC). The results of dominant lethal experiments with mice suggest that BEHP is mutagenic when injected intraperitoneally. However, most experiments conducted with microorganisms and mammalian cells have failed to demonstrate genotoxic activity. Teratogenic and fetotoxic effects have been observed in experimental animals after oral and intraperitoneal administration. Other reproductive effects, including testicular changes in rats and mice, have also been reported.

BEHP appears to have a relatively low toxicity in experimental animals. The oral, intraperitoneal, and intravenous LD_{50} values reported for BEHP in rats are 31 g/kg, 30.7 g/kg, and 0.25 g/kg, respectively. BEHP is poorly absorbed through the skin, and no irritant response or sensitizing potential from dermal application has been noted in experimental animals or humans.

Toxicity to Wildlife and Domestic Animals

Acute median effect values ranged from 1,000 to 11,100 mg/liter BEHP for the freshwater cladoceran Daphnia magna. The LC_{50} values for the midge, scud, and bluegill all exceeded the highest concentrations tested, which were 18,000, 32,000, and 770,000 mg/liter, respectively. As these values are greater than the water solubility of the chemical, it is unlikely that BEHP will be acutely toxic to organisms in natural waters. In a chronic toxicity test with Daphnia magna, significant reproductive impairment was found at the lowest concentration tested, 3 mg/liter. A chronic toxicity value of 8.4 mg/liter was reported for the rainbow trout. No acute or chronic values were reported for saltwater invertebrates or vertebrates. Reported bioconcentration factors for BEHP in fish and invertebrates range from 14 to 2,680.

Although insufficient data were presented to calculate the acute-chronic ratio for BEHP, it is apparently on the order of 100 to 1,000. Therefore, acute exposure to the chemical is unlikely to affect aquatic organisms adversely, but chronic exposure may have detrimental effects on the environment.

CADMIUM (Clement Associates, Inc., 1985)

Health Effects

There is suggestive evidence linking cadmium with cancer of the prostate in humans. In animal studies, exposure to cadmium by inhalation caused lung tumors in rats, and exposure by injection produced injection-site sarcomas and/or Leydig-cell tumors. An increased incidence of tumors has not been seen in animals exposed to cadmium orally, but four of the five available studies were inadequate by current standards.

The evidence from a large number of studies on the mutagenicity of cadmium is equivocal, and it has been hypothesized that cadmium is not directly mutagenic but impedes repair. Cadmium is a known animal teratogen and reproductive toxin. It has been shown to cause renal dysfunction in both humans and animals. Other toxic effects attributed to cadmium include immunosuppression (in animals), anemia (in humans), pulmonary disease (in humans), possible effects on the endocrine system, defects in sensory function, and bone damage. The oral LD_{50} in the rat was 225 mg/kg.

Toxicity to Wildlife and Domestic Animals

Laboratory experiments suggest that cadmium may have adverse effects on reproduction in fish at levels present in lightly to moderately polluted waters.

The acute LC_{50} for freshwater fish and invertebrates generally ranged from 100 to 1,000 μg/liter; salmonids are much more sensitive than other organisms. Saltwater species were in general 10-fold more tolerant to the acute effects of cadmium. Chronic tests have been performed and show that cadmium has cumulative toxicity and acute-chronic ratios that range from 66 to 431. Bioconcentration factors were generally less than 1,000 but were as high as 10,000 for some freshwater fish species.

No adverse effects on domestic or wild animals were reported in the studies review.

CARBON TETRACHLORIDE (Clement Associates, Inc., 1985)

Health Effects

Carbon tetrachloride was carcinogenic in mice, rats, and hamsters; in all cases liver tumors were induced. In addition, mice also displayed a high incidence of tumors of the adrenal gland. Studies discussed by EPA on the mutagenic and teratogenic effects of carbon tetrachloride and its impact on reproduction are inconclusive. Carbon tetrachloride also causes both liver and kidney damage in animals and humans. One study in which guinea pigs were repeatedly exposed to carbon tetrachloride vapor for several months provided evidence of damage to the optic nerve and degeneration of the myelin sheath of the sciatic nerve.

Toxicity to Wildlife and Domestic Animals

Carbon tetrachloride has been shown to be acutely toxic to aquatic species at concentrations as low as 35 mg/liter. No data on chronic toxicity to aquatic life were reported in the literature reviewed. Fish bioconcentrate carbon tetrachloride by a factor of less than 50. No studies on the toxicity of carbon tetrachloride to domestic animals or terrestrial wildlife were found in the literature reviewed.

CHLOROBENZENE (Clement Associates, Inc., 1985)

ealth Effects

A study of the carcinogenicity of chlorobenzene was recently completed by the National Toxicology Program and preliminary results show that chlorobenzene caused neoplastic nodules in the liver of male rats but was not carcinogenic in female rats or in mice.

Occupational studies suggest that chronic exposure to monochlorobenzene vapor may cause blood dyscrasia, hyperlipidemia, and cardiac dysfunction in humans. Like many organic solvents, monochlorobenzene is a central nervous system depressant in overexposed humans, but no chronic neurotoxic effects have been reported. Animals exposed to chlorobenzene have exhibited liver and kidney damage and atrophy of the seminiferous tubules in the testes. The oral LD_{50} value for rats was 2910 mg/kg.

Toxicity to Wildlife and Domestic Animals

Chlorobenzene was acutely toxic to fish at levels greater than 25 mg/liter and to aquatic invertebrates at levels greater than 10 mg/liter. No chronic studies on the toxicity of chlorobenzene to aquatic life were found in the literature reviewed. Monochlorobenzene was shown to have a bioaccumulation ctor of about 1,000 in freshwater species. No studies on errestrial wildlife or domestic animals were reported in the literature reviewed.

CHLOROMETHANE (EPA, October 1980)

Health Effects

Chloromethane is a central nervous system depressant. Toxic manifestations of inhalation exposure include blurred vision, headache, nausea, loss of coordination, and personality changes. Systemic poisonings have involved hepatic and renal injury. Recovery is rapid after brief exposures. There are no reports of reproductive toxicity or teratogenicity in humans. Acute toxic effects from inhalation are reported at 1032 mg/m^3.

Toxicity to Wildlife and Domestic Animals

There is no information available on the toxicity of chloromethane on aquatic life. In animals, a variety of toxic effects have been observed in experimentally exposed animals. Many effects were consistent with human data, suggesting central nervous system involvement and altered metabolism. A 6-hour LC_{50} of 6,500 mg/m^3 is reported for mice.

CHLOROFORM (Clement Associates, Inc., 1985)

Health Effects

Chronic administration of chloroform by gavage is reported to produce a dose-related increase in the incidence of kidney epithelial tumors in rats and a dose-related increase in the incidence of hepatocellular carcinomas in mice. Epidemiological studies suggest that higher concentrations of chloroform and other trihalomethanes in water supplies may be associated with an increased frequency of bladder cancer in humans. However, these results are not sufficient to establish causality. An increased incidence of fetal abnormalities was reported in offspring of pregnant rats exposed to chloroform by inhalation. Oral doses of chloroform that caused maternal toxicity produced relatively mild fetal toxicity in the form of reduced birth weights. There are limited data suggesting that chloroform has mutagenic activity in some test systems. However, negative results have been reported for bacterial mutagenesis assays.

Humans may be exposed to chloroform by inhalation, ingestion, or skin contact. Toxic effects include local irritation of the skin or eyes, central nervous system depression, gastrointestinal irritation, liver and kidney damage, cardiac arrhythmia, ventricular tachycardia, and brachycardia. Death from chloroform overdosing can occur and is attributed to ventricular fibrillation. Chloroform anesthesia can produce delayed death as a result of liver necrosis.

Exposure to chloroform by inhalation, intragastric administration, or intraperitoneal injection produces liver and kidney damage in laboratory animals. The oral LD_{50} and inhalation LC_{LO} values for the rat are 908 mg/kg and 39,000 mg/m^3 per 4 hours, respectively.

CHROMIUM (Clement Associates, Inc., 1985)

Health Effects

The hexavalent form of chromium is of major toxicological importance in higher organisms. A variety of chromate (Cr VI) salts are carcinogenic in rats, and an excess of lung cancer has been observed among workers in the chromate-producing industry. Cr VI compounds can cause DNA and chromosome damage in animals and humans, and Cr (VI) trioxide in teratogenic in the hamster. Inhalation of hexavalent chromium salts causes irritation and inflammation of the nasal mucosa, and ulceration and perforation of the nasal septum. Cr VI also produces kidney damage in animals and humans. The liver is also sensitive to the toxic effects of hexavalent Cr, but apparently less so than the kidneys or respiratory system. Cr III is less toxic than Cr VI; its main effect in humans is a form of contact dermatitis in sensitive individuals.

Toxicity to Wildlife and Domestic Animals

Chromium is an essential nutrient and is accumulated in a variety of aquatic and marine biota, especially benthic organisms, to levels much higher than in ambient water. Levels in biota, however, usually are lower than levels in the sediments. Passage of chromium through the food chain can be demonstrated. The food chain appears to be a more efficient pathway for chromium uptake than direct uptake from seawater.

Water hardness, temperature, dissolved oxygen, species, and age of the test organism all modify the toxic effects of chromium on aquatic life. Cr III appears to be more acutely toxic to fish than Cr VI; the reverse is true in long-term chronic exposure studies.

None of the plants normally used as food or animal feed are chromium accumulators. Chromium absorbed by plants tends to remain primarily in the roots and is poorly translocated to the leaves. There is little tendency for chromium to accumulate along food chains in the trivalent inorganic form. Organic chromium compounds, about which little is known, can have significantly different bioaccumulation tendencies. Little information concerning the toxic effects of chromium on mammalian wildlife and domestic animal species is available.

DDT (Clement Associates, Inc., 1985)

Health Effects

DDT, DDE, and DDD have been shown to be carcinogenic to mice, primarily causing liver tumors, but also causing lung tumors and lymphomas. DDT does not appear to be mutagenic, but it has caused chromosomal damage. There is no evidence that DDT is a teratogen; but it is a reproductive toxin, causing reduced fertility, reduced growth of offspring, and fetal mortality.

Chronic exposure to DDT causes a number of adverse effects, especially to the liver and central nervous system (CNS). DDT induces various microsomal enzymes and therefore probably affects the metabolism of steroid hormones and exogenous chemicals. Other effects on the liver include hypertrophy of the parenchymal cells and increased fat deposition. In the CNS, exposure to DDT causes behavioral effects such as decreased aggression and decreased conditional reflexes. Acute exposure to large doses or chronic exposure to lower doses causes seizures. The oral LD_{50} is between 113 and 450 mg/kg for the rat and is generally higher for other animals.

DDT, DDD, and DDE are bioconcentrated and stored in the adipose tissues of most animals.

Toxicity to Wildlife and Domestic Animals

DDT has been extensively studied in freshwater invertebrates and fishes and is quite toxic to most species. The range of toxicities was 0.18 to 1,800 µg/liter, and the freshwater final acute value for DDT and its isomers was determined by EPA to be 1.1 µg/liter. Saltwater species were somewhat more sensitive to DDT; the saltwater final acute value for the DDT isomers was 0.13 µg/liter. Only one chronic toxicity test on aquatic species was reported. This test indicated that the acute-chronic ratio for DDT might be high (65 in the reported study), but the data were insufficient to allow calculation of a final acute-chronic ratio. DDT, DDD, and DDE are bioconcentrated by a factor of 10^3 to 10^5.

DDT, DDD, DDE and the other persistent organochlorine pesticides are primarily responsible for the great decrease in the reproductive capabilities and consequently in the populations of fish-eating birds, such as the bald eagle, brown pelican, and osprey. DDT has also been shown to decrease the populations of numerous other species of waterbirds, raptors, and passerines significantly.

1,2-DICHLOROETHANE (Clement Associates, Inc., 1985)

Health Effects

1,2-Dichloroethane is carcinogenic in rats and mice, producing a variety of tumors. When administered by gavage, it produced carcinomas of the forestomach and hemangiosarcomas of the circulatory system in male rats; adenocarcinomas of the mammary gland in female rats; lung adenomas in male mice; and lung adenomas, mammary adenocarcinomas, and endometrial tumors in female mice. It is mutagenic when tested using bacterial test systems. Human exposure by inhalation to 1,2-dichloroethane has been shown to cause headache, dizziness, nausea, vomiting, abdominal pain, irritation of the mucous membranes, and liver and kidney dysfunction. Dermatitis may be produced by skin contact. In severe cases, leukocytosis (an excess of white blood cells) may be diagnosed; and internal hemorrhaging and pulmonary edema leading to death may occur. Similar effects are produced in experimental animals.

Toxicity to Wildlife and Domestic Animals

1,2-Dichloroethane is one of the chlorinated ethanes least toxic to aquatic life. For both fresh- and saltwater species, it is acutely toxic at concentrations greater than 118 mg/liter, while chronic toxicity has been observed at 20 mg/liter. 1,2-Dichloroethane is not likely to bioconcentrate, as its steady-state bioconcentration factor was 2 and its elimination half-life was less than 2 days in bluegill.

No information on the toxicity of 1,2-dichloroethane to domestic animals or terrestrial wildlife was available in the literature eviewed.

1,1-DICHLOROETHANE (Clement Associates, Inc., 1985)

Health Effects

Limited toxicological testing of 1,1-dichloroethane has been conducted, although the literature indicates that 1,1-dichloroethane is one of the least toxic of the chlorinated ethanes. An NCI bioassay on 1,1-dichloroethane was limited by poor survival of test animals, but some marginal tumorigenic effects were seen. Inhalation exposure to high doses of 1,1-dichloroethane (over 16,000 mg/m^3) caused retarded fetal development in rats. 1,1-Dichloroethane was not found to be mutagenic using the Ames assay. 1,1-Dichloroethane causes central nervous system depression when inhaled at high concentrations, and evidence suggests that the compound is heptatoxic in humans. Kidney and liver damage was seen in animals exposed to high levels of 1,1-dichloroethane. The oral LD_{50} value in the rat is 725 mg/kg.

Toxicity to Wildlife and Domestic Animals

No information on the toxicity of 1,1-dichloroethane to aquatic species was reported in the literature reviewed. However, the vailable information on the chloroethanes indicates that toxicity declines with decreases in chlorination and that the 1,1,1-isomer is less active than the 1,1,2-isomer. Therefore, 1,1-dichloroethane is probably no more toxic than 1,2-dichloroethane, which is acutely toxic at levels of 100-500 mg/liter and has a chronic toxicity beginning at about 20 mg/liter.

No information on the toxicity of 1,1-dichloroethane to terrestrial wildlife or domestic animals was found in the sources reviewed.

1,1-DICHLOROETHENE (Clement Associates, Inc., 1985)

Health Effects

1,1-Dichloroethene caused kidney tumors in males and leukemia in males and females in one study of mice exposed by inhalation, gave equivocal results in other inhalation studies, and gave negative results in rats and mice following oral exposure and in hamsters following inhalation exposure. 1,1-Dichloroethene was mutagenic in several bacterial assays. 1,1-Dichloroethene did not appear to be teratogenic but did cause embryotoxicity and fetotoxicity when administered to rats and rabbits by inhalation. Chronic exposure to oral doses of 1-dichloroethene as low as 5 mg/kg/day caused liver changes in ats. Acute exposure to high doses causes central nervous system depression, but neurotoxicity has not been associated with low-level chronic exposure. The oral LD_{50} value for the rat is 1,500 mg/kg, and for the mouse it is 200 mg/kg.

Toxicity to Wildlife and Domestic Animals

1,1-Dichloroethene is not very toxic to freshwater or saltwater species, with acute LC_{50} values generally ranging from 80 to 200 mg/liter. A chronic study in which no adverse effects were observed indicated that the acute-chronic ratio was less than 40; a 13-day study that produced an LC_{50} of 29 mg/liter indicated that the acute-chronic ratio is greater than 4.

No reports of the toxicity of 1,1-dichloroethene to terrestrial wildlife or domestic animals were found in the literature reviewed.

ETHYLBENZENE (Clement Associates, Inc., 1985)

Health Effects

Ethylbenzene has been selected by the National Toxicology Program to be tested for possible carcinogenicity, although negative results were obtained in mutagenicity assays in Salmonella typhimurium and Saccharomyces cerevisiae. There is recent animal evidence that ethylbenzene causes adverse reproductive effects. Ethylbenzene is a skin irritant, and its vapor is irritating to the eyes at a concentration of 200 ppm (870 mg/m^3) and above. When experimental animals were exposed to ethylbenzene by inhalation, 7 hours/day for 6 months, adverse effects were produced at concentrations of 600 ppm (2,610 mg/m^3) and above, but not at 400 ppm (1,740 mg/m^3). At 600 ppm, rats and guinea pigs showed slight changes in liver weight, and monkeys and rabbits experienced histopathologic changes in the testes. Similar effects on the liver and kidney were observed in rats fed ethylbenzene at 4-8 and 680 mg/kg/day for 6 months.

Toxicity to Wildlife and Domestic Animals

Ethylbenzene was accurately toxic to freshwater species at levels greater than 32 mg/liter. No chronic toxicity was reported, but the highest test dose (440 µg/liter) was only one-hundredth of the 96-hour LC_{50} for the particular species being tested. No studies on the bioaccumulation of ethylbenzene were reported in the information reviewed, but a bioconcentration factor of 95 was calculated using the log octanol/water partition coefficient. No information on the toxicity of ethylbenzene to domestic animals and terrestrial wildlife was found in the sources reviewed.

ISOPHORONE (ACGIH, 1980)

Health Effects

Exposure in the workplace to isophorone at concentrations of 40 to 400 ppm resulted in eye, nose, and throat irritation, nausea, headache, dizziness, faintness, and inebriation. A time-weighted average threshold limit value of 5 ppm (25 mg/m^3) was recommended to prevent fatigue and malaise. No carcinogenic, mutagenic, or teratogenic effects are reported for humans.

Toxicity to Wildlife and Domestic Animals

No studies on the toxicity of isophorone to domestic animals or wildlife were found in the literature reviewed.

LEAD (Clement Associates, Inc. 1985)

Health Effects

There is evidence that several lead salts are carcinogenic in mice or rats, causing tumors of the kidneys after either oral or parenteral administration. Data concerning the carcinogenicity of lead in humans are inconclusive. The available data are not sufficient to evaluate the carcinogenicity of organic lead compounds or metallic lead. There is equivocal evidence that exposure to lead causes genotoxicity in humans and animals. The available evidence indicates that lead presents a hazard to reproduction and exerts a toxic effect on conception, pregnancy, and the fetus in humans and experimental animals.

Many lead compounds are sufficiently soluble in body fluids to be toxic. Exposure of humans or experimental animals to lead can result in toxic effects in the brain and central nervous system, the peripheral nervous system, the kidneys, and the hematopoietic system. Chronic exposure to inorganic lead by ingestion or inhalation can cause lead encephalopathy, and severe cases can result in permanent brain damage. Lead poisoning may cause peripheral neuropathy in adults and children, and permanent learning disabilities that are clinically undetectable in children may be caused by exposure to relatively low levels. Short-term exposure to lead can cause reversible kidney damage, but prolonged exposure at high concentrations may result in progressive kidney damage and possibly kidney failure. Anemia, due to inhibition of hemoglobin synthesis and a reduction in the life span of circulating red blood cells, is an early manifestation of lead poisoning. Several studies with experimental animals suggest that lead may interfere with various aspects of the immune response.

Toxicity to Wildlife and Domestic Animals

Freshwater vertebrates and invertebrates are more sensitive to lead in soft water than in hard water. At a hardness of about 50 mg/liter $CaCO_3$, the median effect concentrations for nine families range from 140 mg/liter to 236,600 mg/liter. Chronic values for Daphnia magna and the rainbow trout are 12.26 and [illegible].08 mg/liter, respectively, at a hardness of about [illegible] mg/liter. Acute-chronic ratios calculated for three freshwater species ranged from 18 to 62. Bioconcentration factors, ranging from 42 for young brook trout to 1,700 for a snail, were reported. Freshwater algae show an inhibition of growth at concentrations about 500 mg/liter.

Acute values for twelve saltwater species range from 476 mg/liter for the common mussel to 27,000 mg/liter for the softshell clam. Chronic exposure to lead causes adverse effects in mysid shrimp at 37 mg/liter, but not at 17 mg/liter. The acute-chronic ratio for this species is 118. Reported bioconcentration factors range from 17.5 for the quahog clam to 2,570 for the blue mussel. Saltwater algae are adversely affected at concentrations as low as 15.8 mg/liter.

Although lead is known to occur in the tissue of many free-living wild animals, including birds, mammals, fishes, and invertebrates, reports of poisoning usually involve waterfowl. There is evidence that lead, at concentrations occasionally found near roadsides and smelters, can eliminate or reduce populations of bacteria and fungi on leaf surfaces and in soil. Many of these microorganisms play key roles in the decomposer food chain.

Cases of lead poisoning have been reported for a variety of domestic animals, including cattle, horses, dogs, and cats. Several types of anthropogenic sources are cited as the source of lead in these reports. Because of their curiosity and their indiscriminate eating habits, cattle experience the greatest incidence of lead toxicity among domestic animals.

LINDANE (EPA, September 1984)

Health Effects

Ingestion of lindane caused liver tumors in mice, but other animal bioassays have been negative or equivocal. Several case histories link the development of aplastic anemia with exposure to lindane alone or in combination with DDT. Lindane is the most acutely toxic isomer of hexachlorocyclohexane and causes stimulation of the central nervous system. Chronic inhalation of lindane in the workplace resulted in liver changes and chronic pancreatitis.

Toxicity to Wildlife and Domestic Animals

Cladocerans are the most resistant organisms tested, with mean LC_{50} values of 460 to 676 µg/l. Crustaceans are the most sensitive, with LC_{50} values of 10 to 48 µg/l. Freshwater fish LC_{50}s range from 2 to 141 µg/l with warmwater fishes generally more tolerant than the coldwater salmonids.

MERCURY (Clement Associates, Inc., 1985)

Health Effects

When administered by intraperitoneal injection, metallic mercury produces implantation site sarcomas in rats. No other studies were found connecting mercury exposure with carcinogenic effects in animals or humans. Several mercury compounds exhibit a variety of genotoxic effects in eukaryotes. In general, organic mercury compounds are more toxic than inorganic compounds. Although brain damage due to prenatal exposure to methylmercury has occurred in human populations, no conclusive evidence is available to suggest that mercury causes anatomical defects in humans. Embryotoxicity and teratogenicity of methylmercury has been reported for a variety of experimental animals. Mercuric chloride is reported to be teratogenic in experimental animals. No conclusive results concerning the teratogenic effects of mercury vapor are available.

In humans, alkyl mercury compounds pass through the blood brain barrier and the placenta very rapidly, in contrast to inorganic mercury compounds. Major target organs are the central and peripheral nervous systems, and the kidney. Methylmercury is particularly hazardous because of the difficulty of eliminating it from the body. In experimental animals, organic mercury compounds can produce toxic effects in the gastrointestinal tract, pancreas, liver, heart, and gonads, with involvement of the endocrine, immunocompetent, and central nervous systems.

Elemental mercury is not highly toxic as an acute poison. However, inhalation of high concentrations of mercury vapor can cause pneumonitis, bronchitis, chest pains, dyspnea, coughing, stomatitis, gingivitis, salivation, and diarrhea. Soluble mercuric salts are highly poisonous on ingestion, with oral LD_{50} values of 20 to 60 mg/kg reported. Mercurous compounds are less toxic when administered orally. Acute exposure to mercury compounds at high concentrations causes a variety of gastrointentinal symptoms and severe anuria with uremia. Signs and symptoms associated with chronic exposure involve the central nervous system and include behavioral and neurological disturbances.

Toxicity to Wildlife and Domestic Animals

The toxicity of mercury compounds has been tested in a wide variety of aquatic organisms. Although methylmercury appears to be more toxic than inorganic mercuric salts, few acute or chronic toxicity tests have been conducted with it. Among freshwater species, the 96-hour LC_{50} values for inorganic mercuric salts range from 0.02 µg/liter for crayfish to 2,000 µg/liter for caddisfly larvae. Acute values for methylmercuric compounds and other mercury compounds are only available for fishes. In rainbow trout, methylmercuric chloride is about ten times more toxic to rainbow trout than mercuric chloride, which is acutely toxic at about 300 µg/liter at 10°C.

Methylmercury is the most chronically toxic of the tested compounds, with chronic values for Daphnia magna and brook trout of 1.00 and 0.52 µg/liter, respectively. The acute-chronic ratio for Daphnia magna is 3.2.

Mean acute values for saltwater species range from 3.5 to 1,680 µg/liter. In general, molluscs and crustaceans are more sensitive than fish to the acute toxic effects of mercury. A life-cycle experiment with the mysid shrimp showed that inorganic mercury at a concentration of 1.6 µg/liter significantly influences time of appearance of first brood, time of first spawn, and productivity. The acute-chronic ratio for the mysid shrimp is 2.9.

Chronic dietary exposure of chickens to mercuric chloride at growth inhibitory levels causes immune suppression, with a differential reduction effect on specific immunoglobulins.

METHYLENE CHLORIDE (Clement Associates, Inc., 1985)

Health Effects

Methylene chloride is currently under review by the National Toxicology Program. Preliminary results indicate that it produced an increased incidence of lung and liver tumors in mice and mammary tumors in females and male rats. In a chronic inhalation study, male rats exhibited an increased incidence of sarcomas in the ventral neck region. However, the authors suggested that the relevance and toxicological significance of this finding were uncertain in light of available toxicity data. Methylene chloride is reported to be mutagenic in bacterial test systems. It also has produced positive results in the Fischer rat embryo cell-transformation tests. However, it has been suggested that the observed cell-transforming capability may have been due to impurities in the test material. There is no conclusive evidence that methylene chloride can produce teratogenic effects.

In humans, direct contact with methylene chloride produces eye, respiratory passage, and skin irritation. Mild poisonings due to inhalation exposure produce somnolence, lassitude, numbness and tingling of the limbs, anorexia, and lightheadedness, followed by rapid and complete recovery. More severe poisonings generally involve correspondingly greater disturbances of the central and peripheral nervous systems. Methylene chloride also has acute toxic effects on the heart, including the induction of arrhythmia. Fatalities reportedly due to methylene chloride exposure have been attributed to cardiac injury and heart failure. Methylene chloride is metabolized to carbon monoxide in vivo, and levels of carboxyhemoglobin the blood are elevated after acute exposure. In experimental animals, methylene chloride is reported to cause kidney and liver damage, convulsions, and distal paresis. An oral LD_{50} value of 2,136 mg/kg, and an inhalation LC_{50} value of 88,000 mg/m^3/30 minutes are reported for the rat.

Toxicity to Wildlife and Domestic Animals

Very little information concerning the toxicity of methylene chloride to domestic animals and wildlife exists. Acute values for the freshwater species *Daphnia magna*, the fathead minnow, and the bluegill are 224,000, 193,000 and 224,000 μg/liter, respectively. Acute values for the saltwater species, mysid shrimp and sheepshead minnow, are 256,000 and 331,000 μg/liter, respectively. No data concerning chronic toxicity are available. The 96-hour EC_{50} values for both freshwater and saltwater algae are greater than the highest test concentration, 662,000 μg/liter.

NICKEL (Clement Associates, Inc., 1985)

Health Effects

There is extensive epidemiological evidence indicating excess cancer of the lung and nasal cavity for workers at nickel refineries and smelters, and weaker evidence for excess risk in workers at nickel electroplating and polishing operations. Respiratory tract cancers have occurred in excess at industrial facilities that are metallurgically diverse in their operations. The nickel compounds that have been implicated as having carcinogenic potential are insoluble dusts of nickel subsulfide and nickel oxides, the vapor of nickel carbonyl, and soluble aerosols of nickel sulfate, nitrate, or chloride. Inhalation studies with experimental animals suggest that nickel subsulfide and nickel carbonyl are carcinogenic in rats. Evidence for the carcinogenicity of nickel metal and other compounds is relatively weak or inconclusive. Studies with experimental animals indicate that nickel compounds can also produce various types of malignant tumors in experimental animals after administration by other routes, including subcutaneous, intramuscular, implantation, intravenous, intrarenal, and intrapleural. Carcinogenic potential is not strongly dependent on route or site of administration but appears to be inversely related to the solubility of the compounds in aqueous media. Insoluble compounds, such as nickel dust, nickel sulfide, nickel carbonate, nickel oxide, nickel carbonyl, and nickelocene are carcinogenic, whereas soluble nickle salts such as nickel chloride, nickel sulfate, and nickel ammonium sulfate, are not.

Mammalian cell transformation data indicate that several nickel compounds are mutagenic and can cause chromosomal alterations. The available information is inadequate for assessing teratogenic and reproductive effects of nickel in humans and experimental animals.

Dermatitis and other dermatological effects are the most frequent effects of exposure to nickel and nickel-containing compounds. The dermatitis is a sensitization reaction. Most information regarding acute toxicity of nickel involves inhalation exposure to nickel carbonyl. Clinical manifestations of acute poisoning include both immediate and delayed symptoms. Acute chemical pneumonitis is produced, and death may occur at exposures of 30 ppm (107 mg/m^3) for 30 minutes. Rhinitis, nasal sinusitis, and nasal mucosal injury are among the effects reported among workers chronically exposed to various nickel compounds. Studies with experimental animals suggest that nickel and nickel compounds have relatively low acute and chronic oral toxicity.

Toxicity to Wildlife and Domestic Animals

In freshwater, toxicity depends on hardness; nickel tends to be more toxic in softer water. Acute values for exposure to a variety of nickel salts, expressed as nickel, range from 510 µg/liter for Daphnia magna to 46,200 µg/liter for banded killifish at comparable hardness levels. Chronic values range from 14.8 µg/liter for Daphnia magna in soft water to 530 µg/liter for the fathead minnow in hard water. Acute-chronic ratios for Daphnia magna range from 14 in hard water to 83 in soft water, and are approximately 50 in both hard and soft water for the fathead minnow. Residue data for the fathead minnow indicate a bioconcentration factor of 61. Freshwater algae experience reduced growth at nickel concentrations as low as 100 µg/liter.

Acute values for saltwater species range from 152 µg/liter for mysid shrimp to 350,000 µg/liter for the mummichog. A chronic value of 92.7 µg/liter is reported for the mysid shrimp, which gives an acute-chronic ratio of 5.5 for the species. Reduced growth is seen in saltwater algae at concentrations as low as 1,000 µg/liter. Bioconcentration factors ranging from 299 to 416 have been reported for the oyster and mussel.

POLYCHLORINATED BIPHENYLS (PCBS) (Clement Associates, Inc., 1985)

Health Effects

In humans exposed to polychlorinated biphenyls (PCBs) (in the workplace or via accidental contamination of food), reported adverse effects include chloracne (a long-lasting, disfiguring skin disease), impairment of liver function, a variety of neurobehavioral and affective symptoms, menstrual disorders, minor birth abnormalities, and probably increased incidence of cancer. Animals experimentally exposed to PCBs have shown most of the same symptoms, as well as impaired reproduction; pathological changes in the liver, stomach, skin, and other organs; and suppression of immunological functions. PCBs are carcinogenic in rats and mice and, in appropriate circumstances, enhance the effects of other carcinogens. Reproductive and neurobiological effects of PCBs have been reported in rhesus monkeys at the lowest dose level tested, 11 mg/kg body weight/day over a period of several months.

Toxicity to Wildlife and Domestic Animals

ɔlychlorinated biphenyls are bioaccumulated and can be ʌiomagnified. Therefore, their toxicity increases with length of exposure and position of the exposed species on the food chain. The toxicity of the various PCB mixtures is also dependent on their composition. Because of the complexity of PCB toxicity, only general effects will be discussed here.

The 96-hour LC_{50} values for rainbow trout, bluegills, and channel catfish were around 20 mg/liter. The same species exposed for 10 to 20 days had LC_{50} values of about 0.1 mg/liter. Invertebrate species were also adversely affected, with some species having 7-day LC_{50} values as low as 1 mg/liter. In general, juvenile organisms appeared more susceptible to the effects of PCBs than either eggs or adults.

Three primary ways in which PCBs can affect terrestrial wildlife are outright mortality, adversely affecting reproduction, and changing behavior. PCB doses greater than 200 ppm in the diet or 10 mg/kg body weight (bw) caused some mortality in sensitive bird species exposed for several days. Doses around 1,500 ppm (diet) or about 100 mg/kg bw caused extensive mortality in these sensitive species. They generally caused some mortality in all species, with the level being dependent on the length of exposure and the particular PCB mixture. Some mammalian species are especially susceptible to PCBs. For example, mink died when ›d as little as 5 ppm in the diet (equivalent to less than mg/kg bw/day). PCBs caused lower egg production; deformities; decreased hatchability, growth, and survival; and some eggshell thinning in reproductive studies on chickens fed doses of 20 ppm in the diet (1 mg/kg bw). Mink fed 1 ppm in the diet (0.2 mg/kg bw) had lower reproductive success, and there are indications that an increased incidence of premature births in some marine animals was linked to PCB exposure. Behavioral effects on wildlife include increased activity, decreased avoidance response, and decreased nesting, all of which could significantly influence survival in the wild.

No toxic effects on domestic animals other than chickens were reported in the sources reviewed, but susceptible species would probably be affected in a similar manner to laboratory animals and wildlife.

POLYCYCLIC AROMATIC HYDROCARBONS (Clement Associates, Inc., 1985)

Health Effects

The potential for polycyclic aromatic hydrocarbons (PAHs) to induce malignant transformation dominates the consideration of health hazards resulting from exposure, because there often are ` overt signs of toxicity until the dose is high enough to ɔduce a high tumor incidence.

No case reports or epidemiological studies concerning the significance of human exposure to individual PAHs are available. However, coal tar and other materials known to be carcinogeni to humans contain PAHs.

PAHs administered by various routes have been found to be carcinogenic in several animal species and to have both local and systemic carcinogenic effects. On oral administration, carcinogenic PAHs produce tumors of the forestomach in mice. Lung tumors are produced in hamsters after intratracheal administration and in mice after intravenous administration. In skin painting experiments with mice, carcinogenic PAHs produced skin carcinomas. Other observed effects include induction of local sarcomas and an increased incidence of lung adenomas in mice following single, subcutaneous injections. Studies in other species, while indicating the PAHs have universal carcinogenic effects, are less complete. Carcinogenic PAHs are reported to be mutagenic in a variety of test systems. The limited available information suggests that PAHs are not very potent teratogens or reproductive toxins.

There is very little information regarding nonmalignant changes caused by exposure to PAHs. Application of carcinogenic PAHs to mouse skin is reported to cause destruction of sebaceous glands, hyperplasia, hyperkeratosis, and ulceration. Many carcinogenic PAHs also have immunosuppressive effects. Subcutaneous injections of some PAHs for several weeks reportedly caused hemolymphatic changes in the lymph nodes in rats. Worker: exposed to PAH-containing materials have exhibited chronic dermatitis, hyperkeratoses, and other skin disorders.

Toxicity to Wildlife and Domestic Animals

There is very little information on the environmental toxicity of PAHs; they probably are not very toxic to aquatic organisms.

1,1,2,2-TETRACHLOROETHANE (Clement Associates, Inc., 1985)

Health Effects

1,1,2,2-Tetrachloroethane is a liver carcinogen when administered orally to mice. IARC concludes that there is limited evidence for its carcinogenicity in experimental animals. This compound is mutagenic in at least two bacterial test strains. Administration of 300-400 mg/kg/day to mice during organogenesis is reported to produce embryotoxic effects and slightly increase the incidence of malformations.

1,1,2,2-Tetrachloroethane produces acute and chronic toxic effects in laboratory animals exposed by various routes. Toxic action is primarily on the liver. However, effects on the central nervous system, kidneys, and other tissues are also reported; and acute exposure can be fatal. The oral LD_{50} ir rats is 250 mg/kg.

Numerous deaths in humans have been reported, primarily as a result of occupational exposure by ingestion, inhalation, or [s]kin contact. Acute exposure produces central nervous system [dep]ression. Chronic effects include hepatotoxicity and gastrointestinal disturbances in addition to central nervous system effects such as tremors, dizziness, headache, paralysis, and polyneuritis.

Toxicity to Wildlife and Domestic Animals

Acute values for freshwater species range from 9,320 μg/liter for an invertebrate species to approximately 20,000 μg/liter for two species of fish. An embryo-larval test conducted with the fathead minnow provides a chronic value of 2,400 μg/liter and an acute-chronic ratio of 8.5 for this species. Among saltwater species, acute values of 9,020 μg/liter for the mysid shrimp and 12,300 μg/liter for the sheepshead minnow are reported. Exposure to 1,1,2,2-tetrachloroethane affects chlorophyll a and cell numbers of algae exposed to approximately 141,000 μg/liter in a freshwater species and 6,300 μg/liter in a saltwater species. The weighted average bioconcentration factor for the edible portion of all freshwater and estuarine aquatic organisms consumed by Americans is 5.0.

TETRACHLOROETHENE (Clement Associates, Inc., 1985)

Health Effects

[Tet]rachloroethene was found to produce liver cancer in male and female mice when administered orally by gavage. Unpublished gavage studies in rats and mice performed by the National Toxicology Program (NTP) showed heptocellular carcinomas in mice and a slight, statistically insignificant increase in a rare type of kidney tumor. NTP is also conducted an inhalation carcinogenicity study. Elevated mutagenic activity was found in Salmonella strains treated with tetrachloroethene. Delayed ossification of skull bones and sternebrae were reported in offspring of pregnant mice exposed to 2,000 mg/m^3 of tetrachloroethene and 7 hours/day on days 6-15 of gestation. Increased fetal resorptions were observed after exposure of pregnant rats to tetrachloroethene. Renal toxicity and hepatoxicity have been noted following chronic inhalation exposure of rats to tetrachloroethene levels of 1,356 mg/m^3. During the first 2 weeks of a subchronic inhalation study, exposure to concentrations of 1,622 ppm (10,867 mg/m^3) of tetrachloroethene produced signs of central nervous system depression, and cholinergic stimulation was observed among rabbits, monkeys, rats, and guinea pigs.

Toxicity to Wildlife and Domestic Animals

Tetrachloroethene is the most toxic of the chlorothene to [aqua]tic organisms but is only moderately toxic relative to other [classe]s of compounds. The limited acute toxicity data indicated that the LC_{50} value for saltwater and freshwater species were similar, around 10,000 µg/liter; the trout was the most sensitive (LC_{50} = 4,800 µg/liter). Chronic values were 840 and 450 µg/liter for freshwater and saltwater species respectively and an acute-chronic ratio of 19 was calculated.

No information on the toxicity of tetrachloroethene to terrestrial wildlife or domestic animals was available in the literature reviewed.

TOLUENE (Clement Associates, Inc., 1985)

Health Effects

There is no conclusive evidence that toluene is carcinogenic or mutagenic in animals or humans. The National Toxicological Program is currently conducting an inhalation carcinogenicity bioassay in rats and mice.

Oral administration of toluene at doses as low at 260 mg/kg produced a significant increase in embryonic lethality in mice. Decreased fetal weight was observed at doses as low as 434 mg/kg, and an increased incidence of cleft palate was seen at doses as low at 867 mg/kg. However, other researchers have reported that toluene is embryotoxic but not teratogenic in laboratory animals. There are no accounts of a teratogenic effect in humans being linked to toluene exposure.

Acute exposure to toluene at concentrations o. 357-1,500 mg/m^3 produces central nervous system depression and narcosis in humans. However, even exposure to quantities sufficient to produce unconsciousness fails to produce residual organic damage. The rat oral LD_{50} value and inhalation LC_{LO} value are 5,000 mg/kg and 15,000 mg/m^3, respectively. Chronic inhalation exposure to toluene at relatively high concentrations produces cerebellar degeneration and an irreversible encephalopathy in mammals.

Toluene in sufficient amounts appears to have the potential to significantly alter the metabolism and resulting bioactivity of certain chemicals. For example, coadministrations of toluene along with benzene or styrene have been shown to suppress metabolism of the benzene or styrene in rats.

Toxicity to Wildlife and Domestic Animals

Of five freshwater species acutely tested with toluene, the cladoceran Daphnia magna was most resistant. The EC_{50} and LC_{50} values for all species range from 12,700 to 313,000 µg/liter. No chronic tests are available for freshwater species. The two freshwater algal species tested are relatively insensitive to toluene with EC_{50} values of 245,000 µg/liter or greater being reported. For saltwater species, EC_{50} and LC_{50} values range from 3,700 µg/liter for the bay shrimp tc 1,050 mg/liter for the Pacific oyster. The chronic value in an embryo-larval test for the sheepshead minnow is reported to be between 3,200 and 7,700 μg/liter, and the acute-chronic ratio is between 55 and 97. In several saltwater algal species and kelp, ᶜfects occur at toluene concentrations from 8,000 to more than 3,000 μg/liter.

1,1,2-TRICHLOROETHANE (Clement Associates, Inc., 1985)

Health Effects

1,1,2-Trichloroethane induced heptacellular carcinomas and pheochromocytoma of the adrenal gland in male and female mice but did not produce a significant increase in tumor incidence in male or female rats. It was not mutagenic when tested using the Ames assay. No information was found concerning the reproductive toxicity or teratogenicity of 1,1,2-trichloroethane. No chronic studies were found on the toxicity of 1,1,2-trichloroethane but single doses as low as 400 mg/kg caused liver and kidney damage in dogs. The oral LD_{50} value for 1,1,2-trichloroethane in rats is 835 mg/kg.

Toxicity to Wildlife and Domestic Animals

The acute LC_{50} values for 1,1,2-trichloroethane for freshwater aquatic organisms ranged from 18,000 to 81,700 μg/liter. One chronic test was conducted; this indicated that the acute-chronic ratio for 1,1,2-trichloroethane was around 8.7. No information on the toxicity of 1,1,2-trichloroethane to ltwater species, terrestrial wildlife, or domestic animals was ailable in the literature reviewed.

1,1,1-TRICHLOROETHANE (Clement Associates, Inc., 1985)

Health Effects

1,1,1-Trichloroethane was retested for carcinogenicity because in a previous study by NCI, early lethality precluded assessment of carcinogenicity. Preliminary results indicate that 1,1,1-TCA increased the incidence of combined hepatocellular carcinomas and adenomas in female mice when administered by gavage. There is evidence that 1,1,1-trichloroethane is mutagenic in Salmonella typhimurium and causes transformation in cultured rat embryo cells. These data suggest that the chemical may be carcinogenic.

Other toxic effects of 1,1,1-TCA are seen only at concentrations well above those likely in an open environment. The most notable toxic effects of 1,1,1-trichloroethane in humans and animals are central nervous system depression, including anesthesia at very high concentrations and impairment of coordination, equilibrium, and judgment at lower concentrations (350 ppm and above); cardiovascular effects, including premature ventricular contractions, decreased blood pressure, and nsitization to epinephrine-induced arrhythmia; and adverse ects on the lungs, liver, and kidneys. Irritation of the skin and mucous membranes resulting from exposure to

1,1,1-trichloroethane has also been reported. The oral LD_{50} value of 1,1,1-trichloroethane in rats is about 11,000 mg/kg.

Toxicity to Wildlife and Domestic Animals

The acute toxicity of 1,1,1-trichloroethane to aquatic species is rather low, with the LC_{50} concentration for the most sensitive species tested being 52.8 mg/l. No chronic toxicity studies have been done on 1,1,1-trichloroethane, but acute-chronic ratios for the other chlorinated ethanes ranged from 2.8 to 8.7. 1,1,1-Trichloroethane was only slightly bioaccumulated with a steady-state bioconcentration factor of nine and an elimination half-life of 2 days.

No information on the toxicity of 1,1,1-trichloroethane to terrestrial wildlife or domestic animals was available in the literature reviewed.

TRICHLOROETHENE (Clement Associates, Inc., 1985)

Health Effects

Trichloroethene is carcinogenic to mice after oral administration, producing hepatocellular carcinomas. It was found to be mutagenic using several microbial assay systems. Trichloroethene does not appear to cause reproductive toxicity or teratogenicity. TCE has been shown to cause renal toxicity, hepatotoxicity, neurotoxicity, and dermatological reactions in animals following chronic exposure to levels greater than 2,000 mg/m^3 for 6 months. Trichloroethene has low acute toxicity; the acute oral LD_{50} value in several species ranged from 6,000 to 7,000 mg/kg.

Toxicity to Wildlife and Domestic Animals

There was only limited data on the toxicity of trichloroethene to aquatic organisms. The acute toxicity to freshwater species was similar in the three species tested, with LC_{50} values of about 50 mg/liter. No LC_{50} values were available for saltwater species. However, a dose of 2 mg/liter caused erratic swimming and loss of equilibrium in the grass shrimp. No chronic toxicity tests were reported.

No information on the toxicity of trichloroethene to domestic animals or terrestrial wildlife was available in the literature reviewed.

VINYL CHLORIDE (Clement Associates, Inc., 1985)

Health Effects

IARC considers vinyl chloride to be a Category I human carcinogen, causing angiosarcomas of the liver and tumors of the brain, lung, and hemolymphopoietic system in humans. Vinyl chloride is carcinogenic in mice, rats, and hamsters; it produces tumors at several sites, including angiosarcomas of the liver, after oral or inhalation exposure. Vinyl chloride, both as a vapor and in solution, is mutagenic in several biological assay systems. In addition, chromosome aberrations including fragments, dicentics and rings, breaks, and gaps have been found in workers occupationally exposed to vinyl chloride. The evidence on its teratogenic and reproductive effects is equivocal. Minor skeletal abnormalities and increased fetal death rates have been observed in the offspring of experimental animals exposed by inhalation to vinyl chloride. In humans, a significant increase in fetal deaths was seen in women whose husbands were exposed to vinyl chloride. Also, an excess number of central nervous system disorders and deformities of the upper alimentary tract, genital organs, and feet were observed in stillborn and live children born in cities with vinyl chloride facilities. However, further research is necessary before the link between vinyl chloride and these observed effects can be positively established.

Acute occupational exposure to high concentrations of vinyl chloride can produce symptoms of narcosis in humans. Respiratory tract irritation, bronchitis, headache, irritability, memory disturbances, and tingling sensations may also occur. Chronic exposure to vinyl chloride is associated with multiple systemic disorders, including a sclerotic syndrome, acro-osteolysis, thrombocytopenia, and liver damage, consisting of damage to parenchymal cells, fibrosis of the liver capsule, periportal fibrosis associated with hepatomegaly, and splenomegaly. Concentrations encountered by workers in industries using or producing vinyl chloride are reportedly quite variable and may range from less than the limit of detection to several grams per cubic meter.

Acute inhalation exposure of experimental animals to high concentrations of vinyl chloride can result in narcosis and death. The 2-hour LC_{50} value for rats is 390 g/m^3. Chronic exposure of experimental animals can result in growth disturbances and histopathological and histochemical lesions in the liver, kidneys, spleen, and lungs.

Toxicity to Wildlife and Domestic Animals

No information is available concerning the toxicity of vinyl chloride to domestic animals or wildlife.

XYLENES (Clement Associates, Inc., 1985)

Health Effects

The National Toxicology Program (NTP) is testing xylene for carcinogenicity by administering it orally to rats and mice. Although the results have not been finalized, it does not appear to be carcinogenic in rats. Results have not been reported for mice. Xylene was found not to be mutagenic in a battery of short-term assays. Xylene was not teratogenic but has caused fetotoxicity in rats and mice. Acute exposure to rather high levels of xylene affect the central nervous system and irritates the mucous membranes. There is limited evidence of effects on other organ systems, but it was not possible to attribute these effects solely to xylene as other solvents were present. The oral LD_{50} value of xylene in rats was 5,000 mg/kg.

Toxicity to Wildlife and Domestic Animals

Xylene adversely affected adult trout at concentrations as low as 3.6 mg/liter in a continuous flow system and trout fry avoided xylene at concentrations greater than 0.1 mg/liter. The LC_{50} value in adult trout was determined to be 13.5 mg/liter. LC_{50} values for other freshwater fish were around 30 mg/liter in a static system, which probably underestimated toxicity. Only a few studies have been done on the toxicity of xylene to saltwater species. These indicated that the m- and o-xylene isomers probably have similar toxicities and are probably less toxic than p-xylene, and that saltwater species are generally more susceptible than freshwater species to the detrimental effects of xylene (LC_{50} = 10 mg/liter for m- and o-xylene and LC_{50} = 2 mg/liter for p-xylene). However, it should be stressed that these generalizations are based on results from limited data.

No information on the toxicity of xylenes to terrestrial wildlife and domestic animals was available in the literature reviewed. However, because of the low acute toxicity of xylenes, it is unlikely that they would be toxic to wild or domestic birds or mammals.